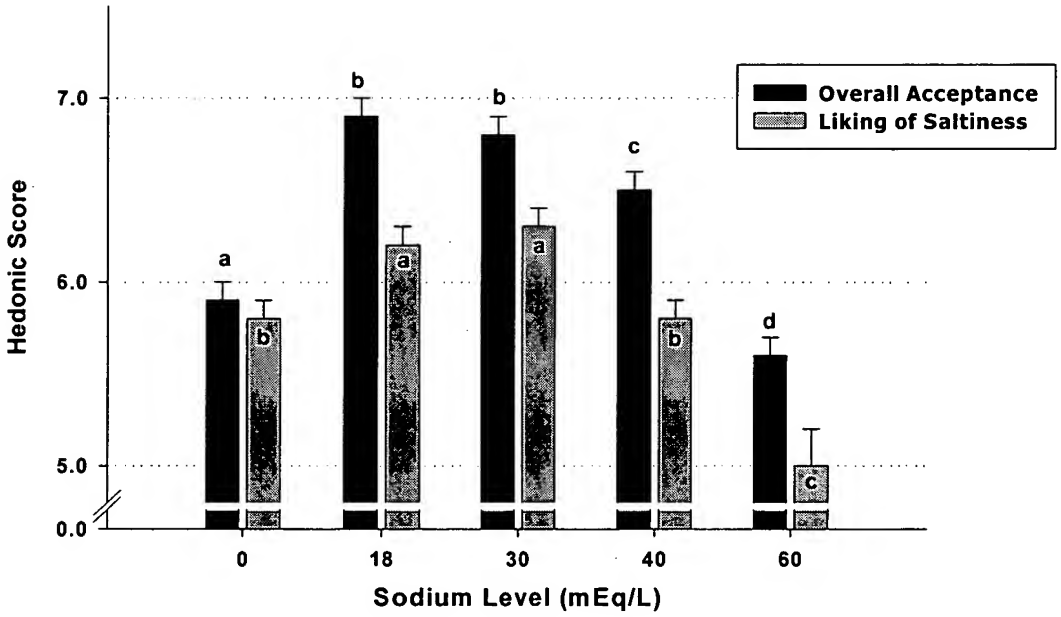


Means sharing same lowercase letter (a, b, c, ...) are not significantly different based on Duncan Test ($p<0.05$).

Figure 1

Experimental Procedure

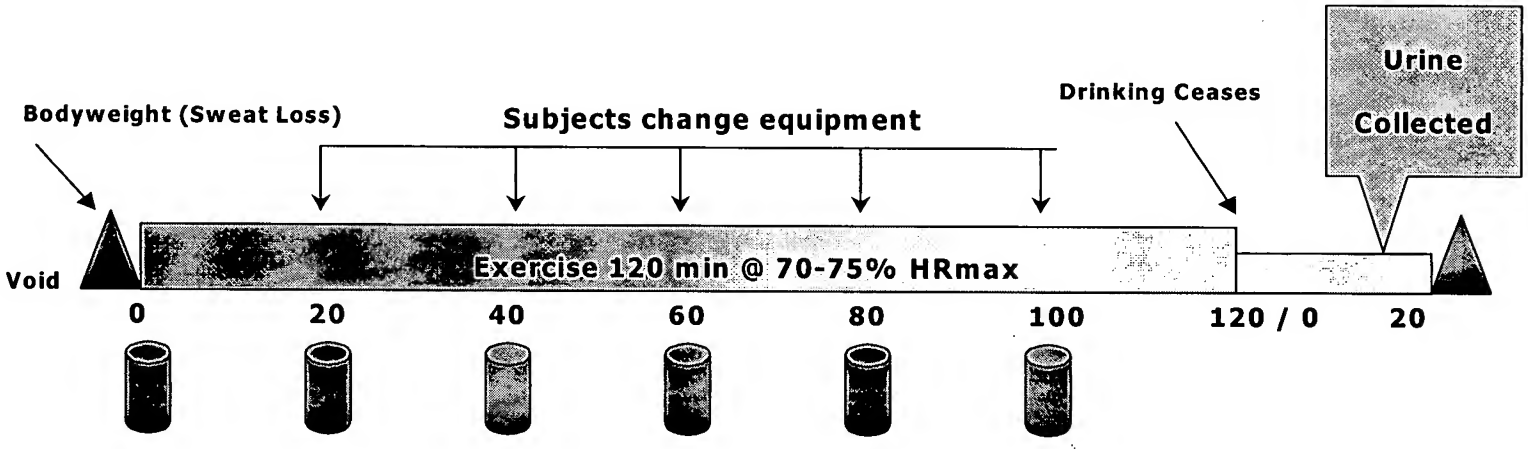
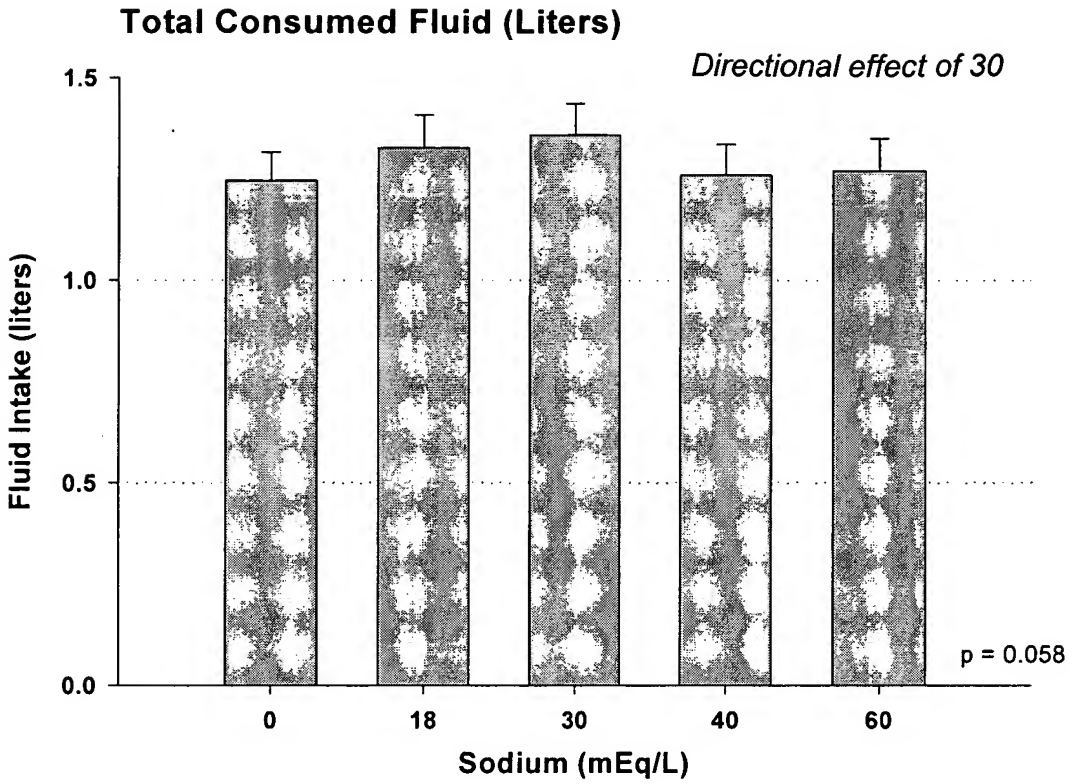


Figure 2



Mean (SEM)

Figure 3

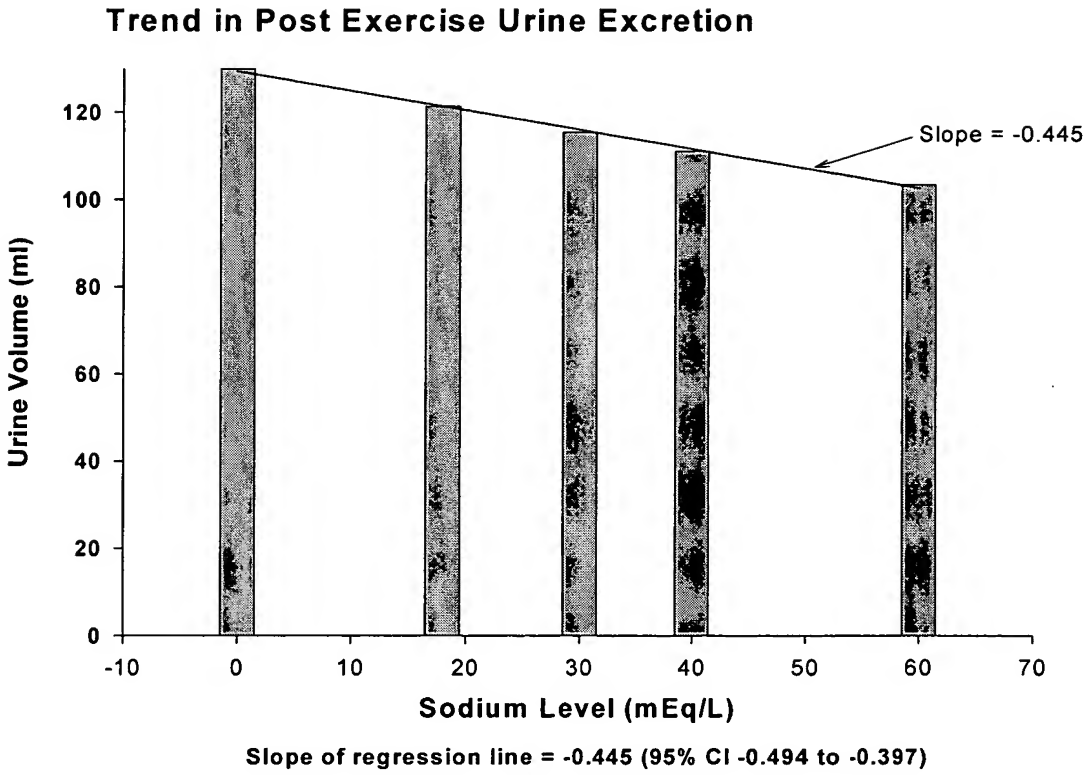

Trend in Post Exercise Urine Excretion
Slope = -0.445
Urine Volume (ml)
120
100
80
60
40
20
0
-10
0
10
20
30
40
50
60
70
Sodium Level (mEq/L)
Slope of regression line = -0.445 (95% CI -0.494 to -0.397)

Figure 4

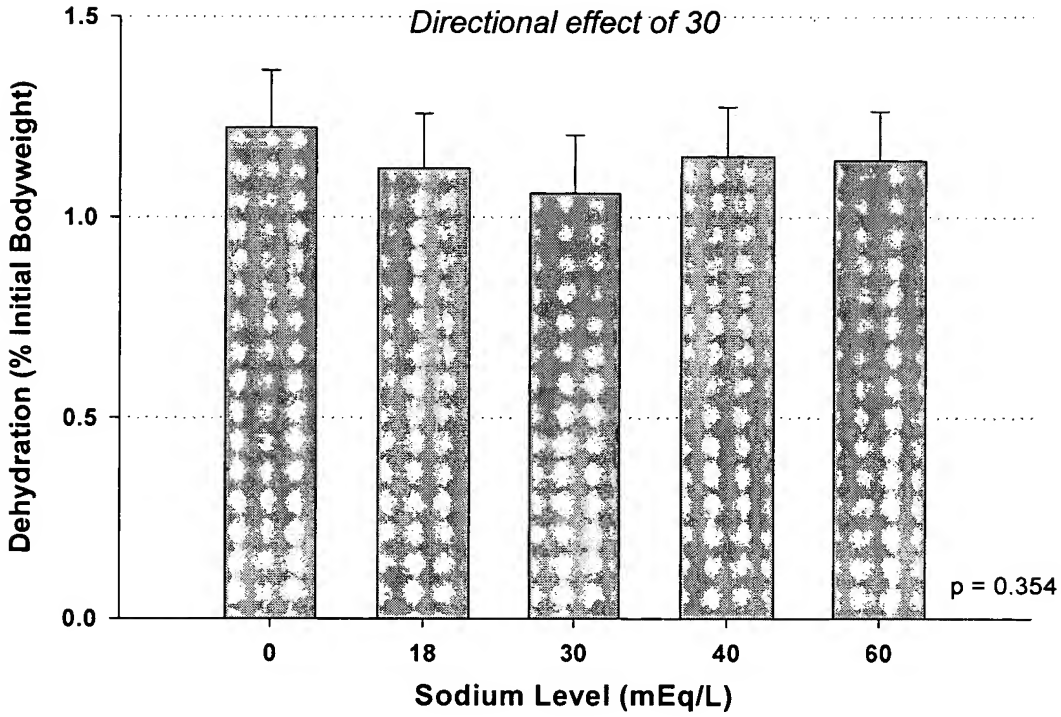

Directional effect of 30
1.5
1.0
0.5
0.0
Dehydration (% Initial Bodyweight)
p = 0.354
0
18
30
40
60
Sodium Level (mEq/L)

Figure 5

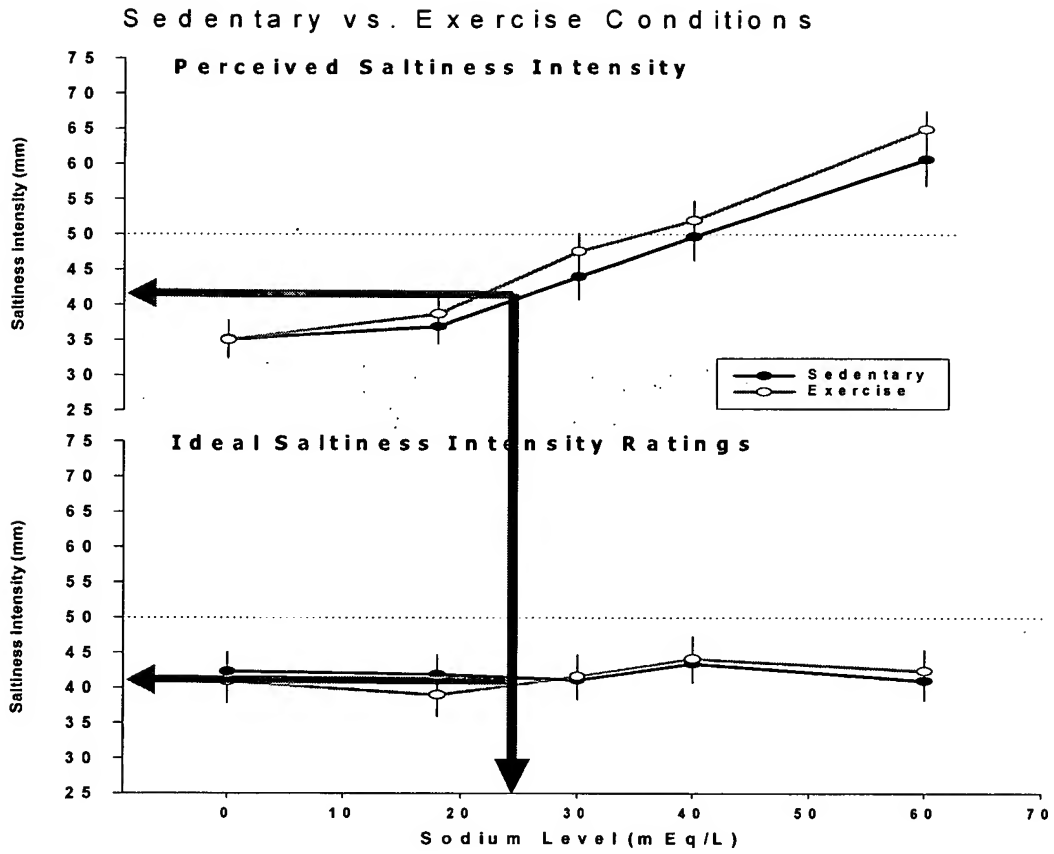
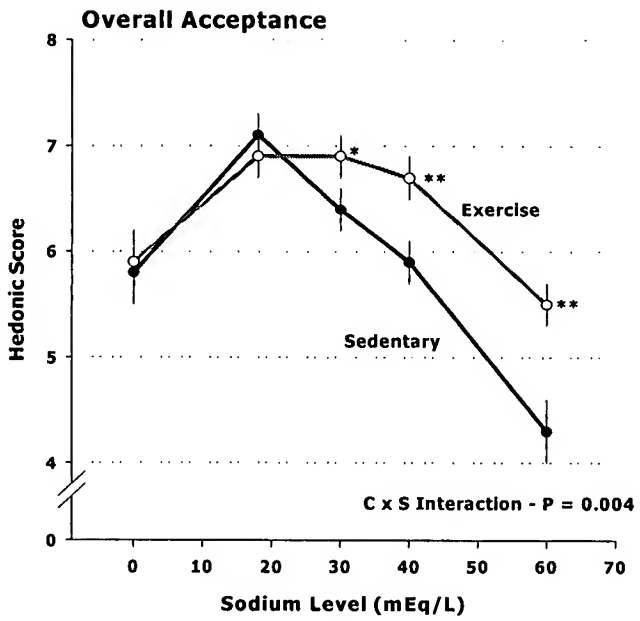

Sedentary vs. Exercise Conditions
Perceived Saltiness Intensity
Saltiness Intensity (mm)
75
70
65
60
55
50
45
40
35
30
25
Sedentary
Exercise
Ideal Saltiness Intensity Ratings
Saltiness Intensity (mm)
0
10
20
30
40
50
60
70
Sodium Level (mEq/L)

Figure 6


Overall Acceptance
Hedonic Score
8
7
6
5
4
0
*
**
Exercise
**
Sedentary
C x S Interaction - P = 0.004
0
10
20
30
40
50
60
70
Sodium Level (mEq/L)

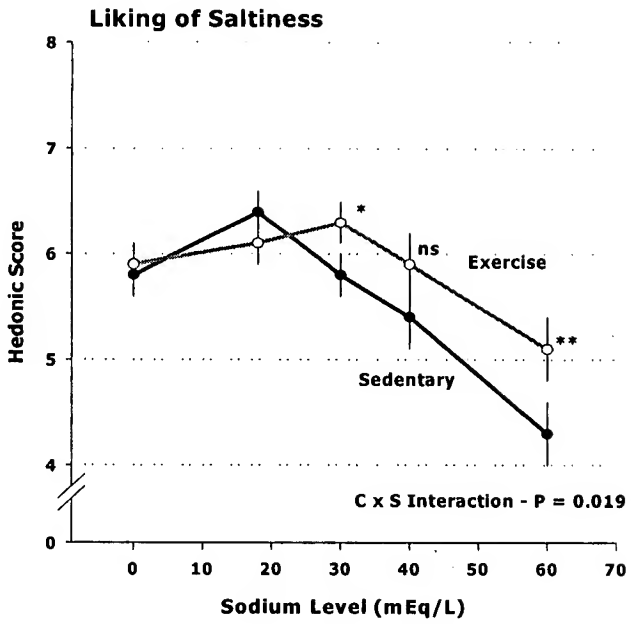

Liking of Saltiness
Hedonic Score
8
7
6
5
4
0
*
ns
Exercise
**
Sedentary
C x S Interaction - P = 0.019
0
10
20
30
40
50
60
70
Sodium Level (mEq/L)

Figure 7

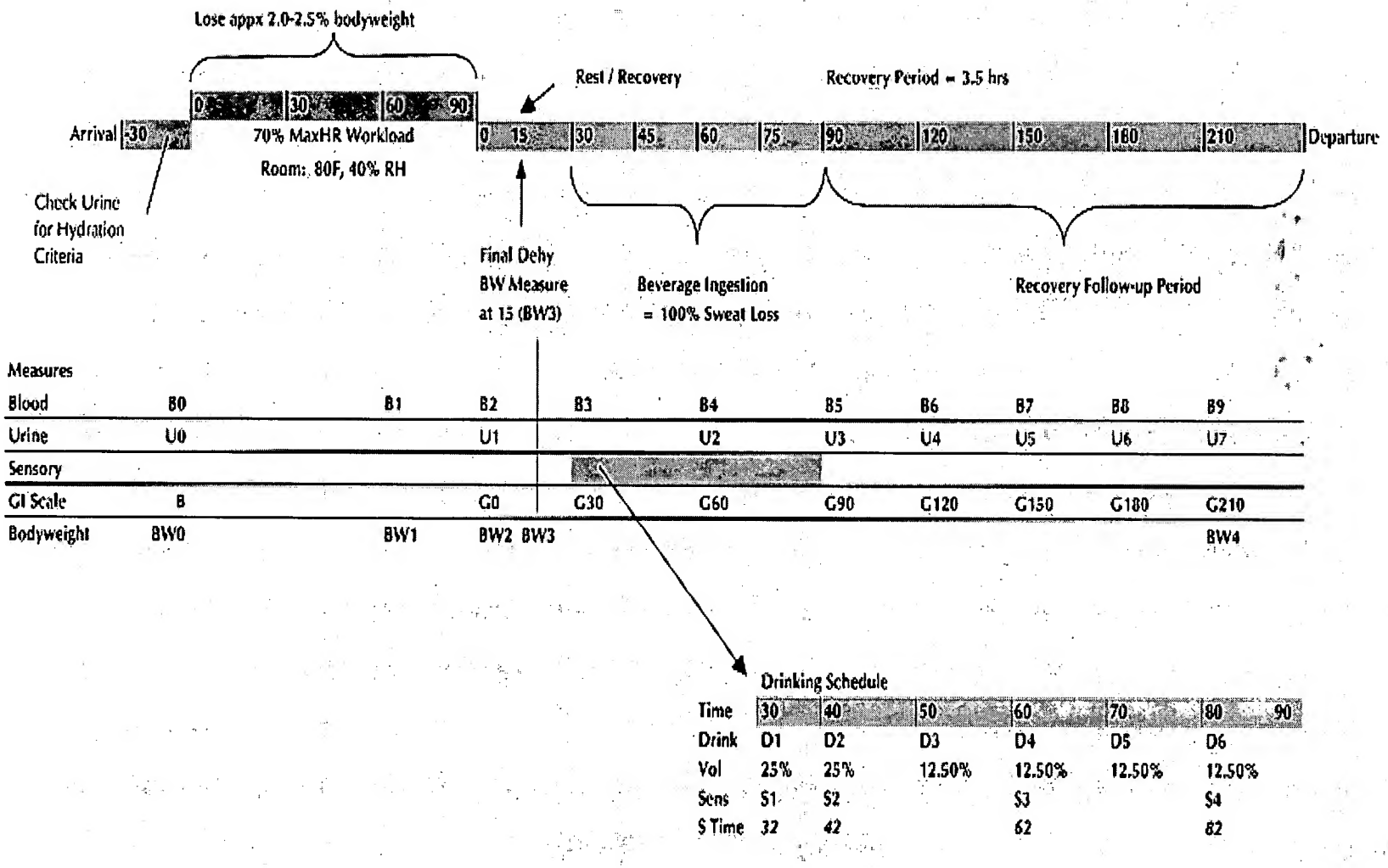
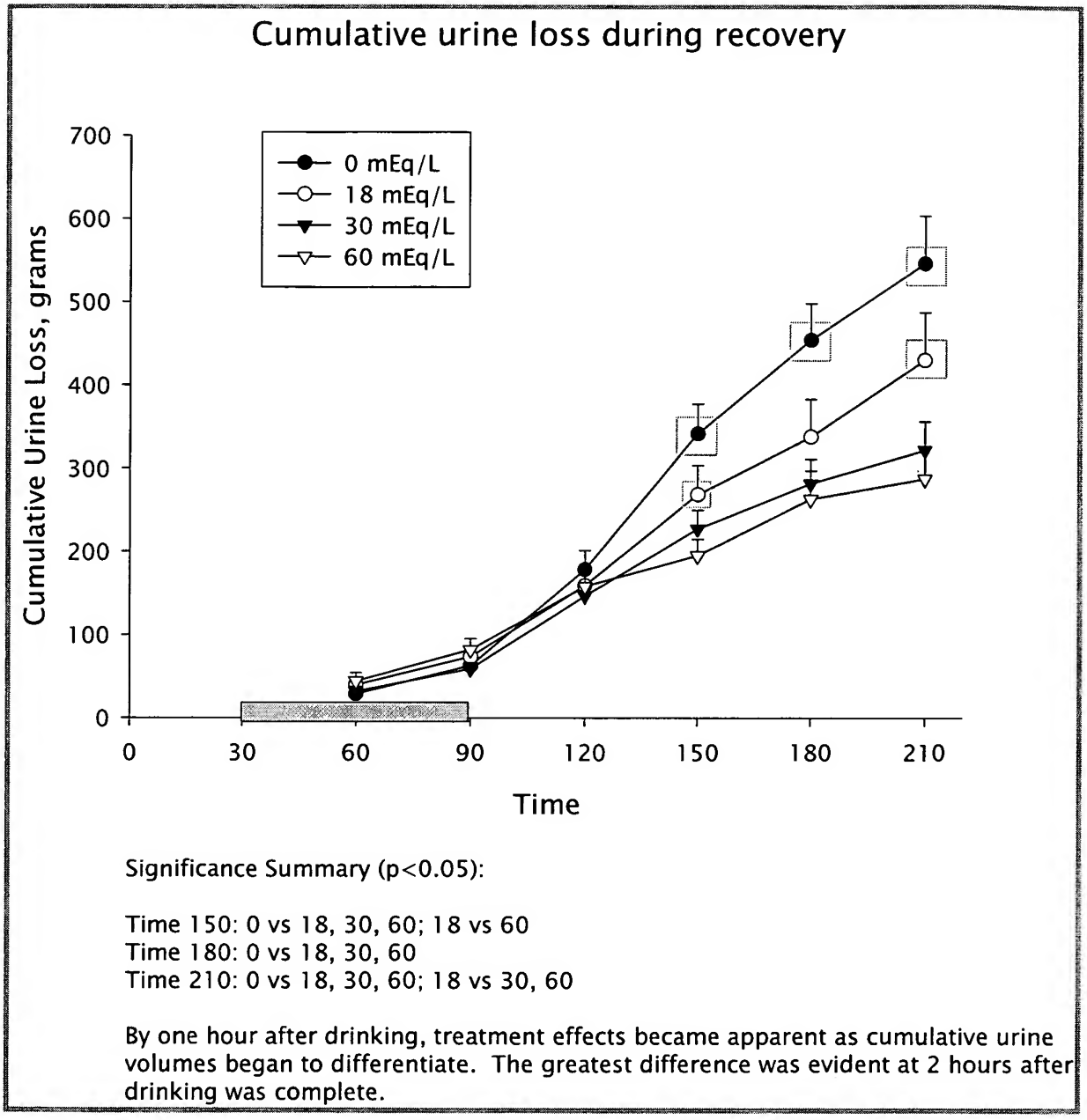

Lose appx 2.0-2.5% bodyweight
Rest / Recovery
Recovery Period = 3.5 hrs
Arrival
-30
0
30
60
90
70% MaxHR Workload
Room: 80F, 40% RH
0
15
30
45
60
75
90
120
150
180
210
Departure
Check Urine for Hydration Criteria
Final Dehy BW Measure at 15 (BW3)
Beverage Ingestion = 100% Sweat Loss
Recovery Follow-up Period
Measures
Blood B0 B1 B2 B3 B4 B5 B6 B7 B8 B9
Urine U0 U1 U2 U3 U4 U5 U6 U7
Sensory
GI Scale B G0 G30 G60 G90 G120 G150 G180 G210
Bodyweight BW0 BW1 BW2 BW3 BW4
Drinking Schedule
Time 30 40 50 60 70 80 90
Drink D1 D2 D3 D4 D5 D6
Vol 25% 25% 12.50% 12.50% 12.50% 12.50%
Sens S1 S2 S3 S4
S Time 32 42 62 82

Figure 8



Significance Summary ($p<0.05$):

Time 150: 0 vs 18, 30, 60; 18 vs 60
Time 180: 0 vs 18, 30, 60
Time 210: 0 vs 18, 30, 60; 18 vs 30, 60

By one hour after drinking, treatment effects became apparent as cumulative urine volumes began to differentiate. The greatest difference was evident at 2 hours after drinking was complete.

Figure 9

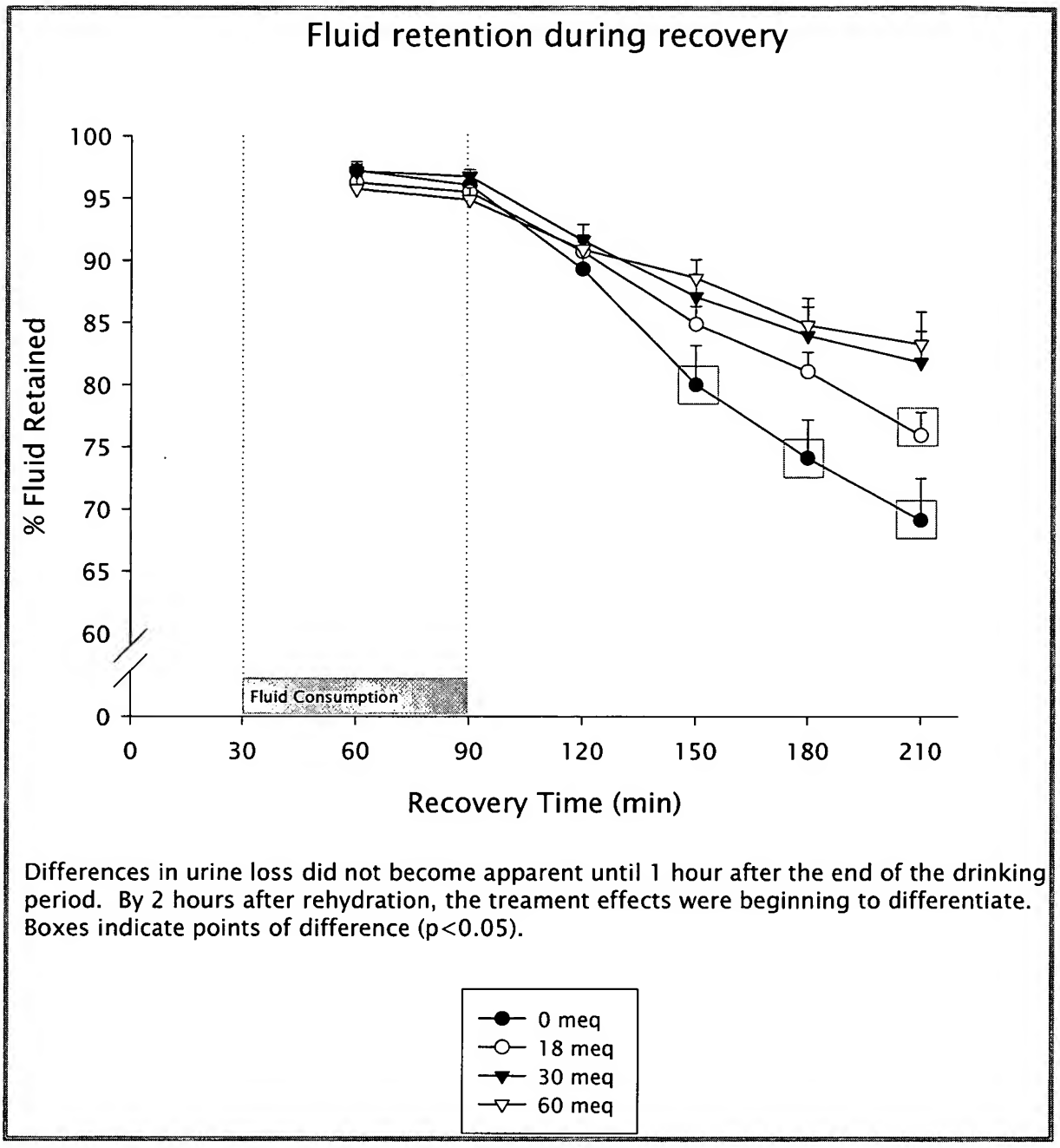

Fluid retention during recovery
% Fluid Retained
100
95
90
85
80
75
70
65
60
0
Fluid Consumption
0
30
60
90
120
150
180
210
Recovery Time (min)
Differences in urine loss did not become apparent until 1 hour after the end of the drinking period. By 2 hours after rehydration, the treament effects were beginning to differentiate. Boxes indicate points of difference (p<0.05).
0 meq
18 meq
30 meq
60 meq

Figure 10

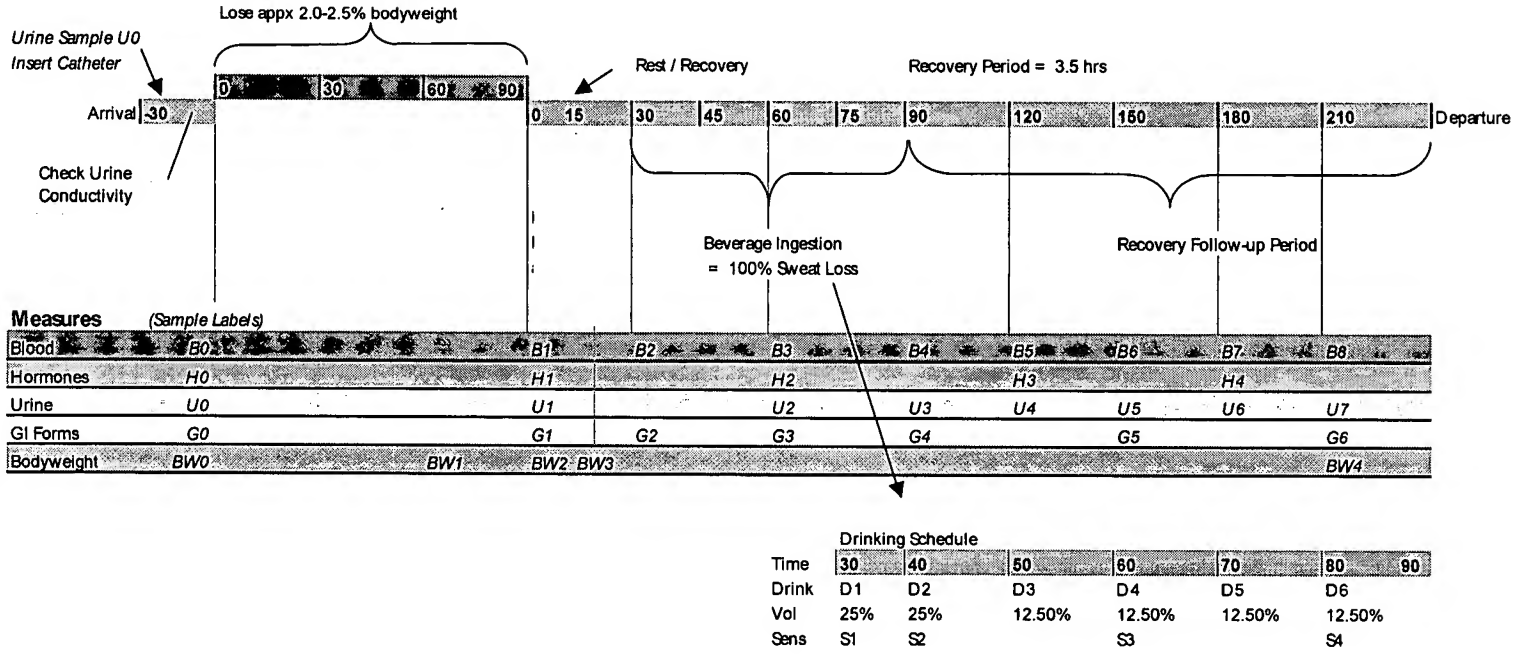

Lose appx 2.0-2.5% bodyweight
Urine Sample U0
Insert Catheter
Rest / Recovery
Recovery Period = 3.5 hrs
Arrival
Departure
Check Urine Conductivity
Beverage Ingestion = 100% Sweat Loss
Recovery Follow-up Period
Measures
(Sample Labels)
Blood
Hormones
Urine
GI Forms
Bodyweight
Drinking Schedule
Time
Drink
Vol
Sens

Figure 11

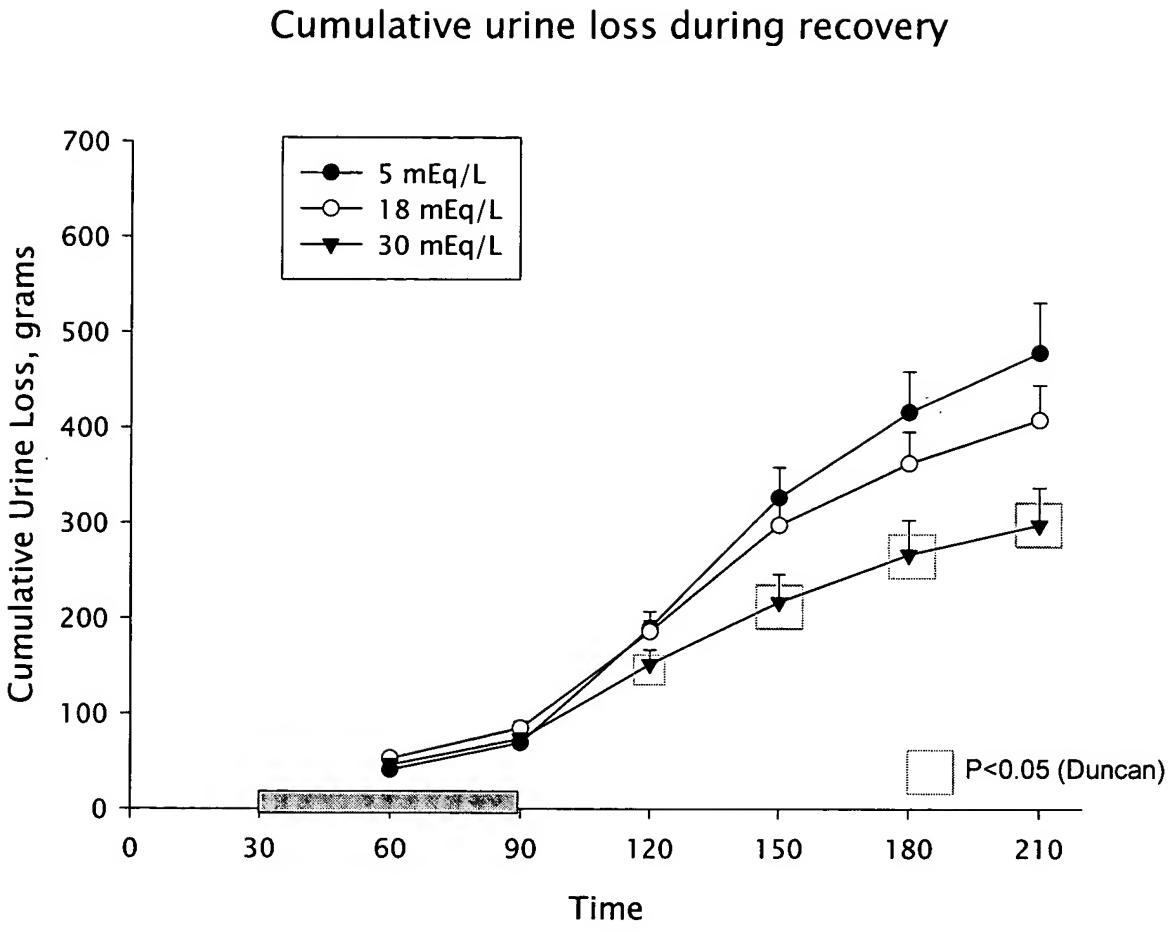

Cumulative urine loss during recovery
Cumulative Urine Loss, grams
700
600
500
400
300
200
100
0
5 mEq/L
18 mEq/L
30 mEq/L
P<0.05 (Duncan)
0
30
60
90
120
150
180
210
Time

Figure 12

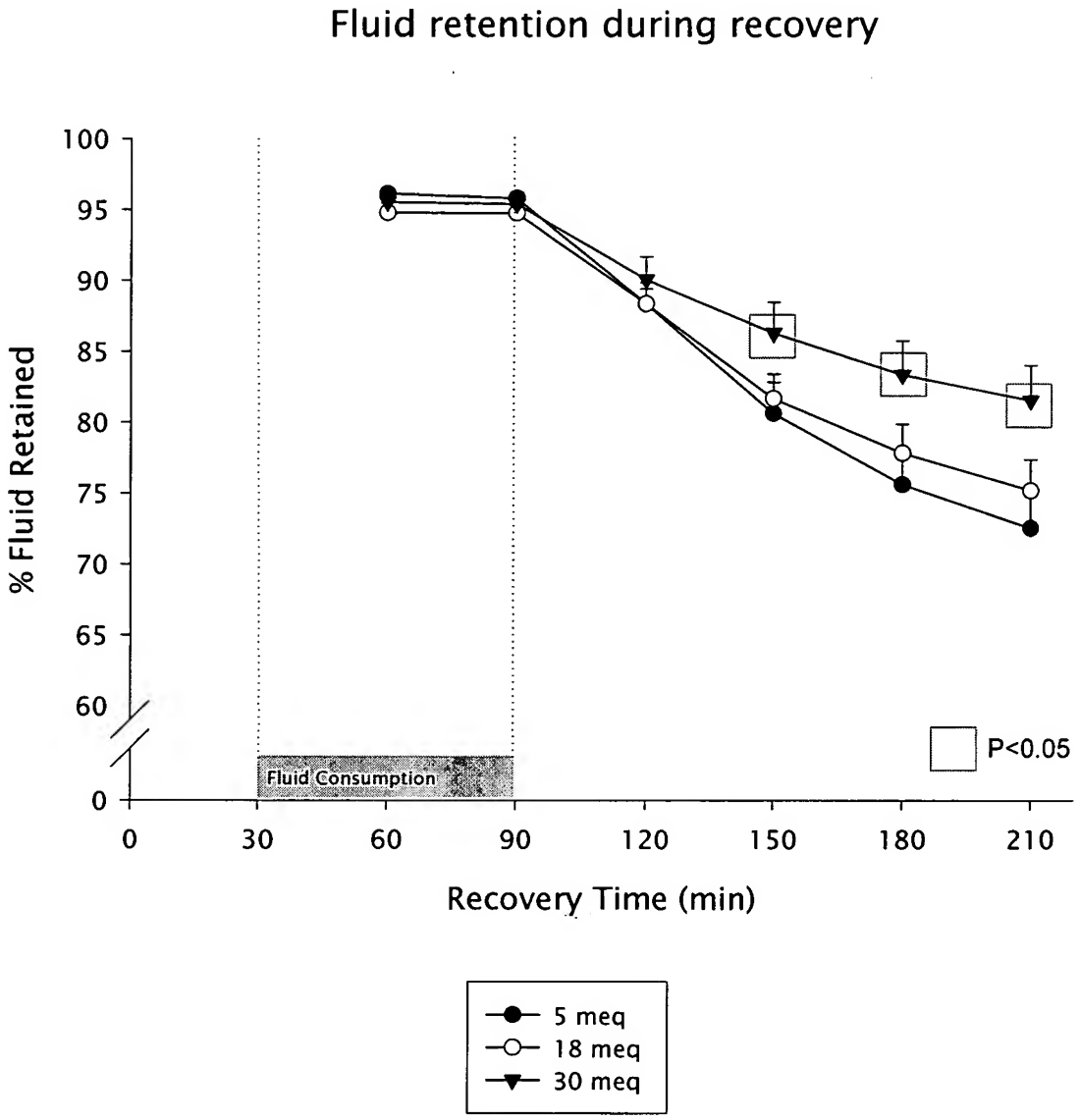

Fluid retention during recovery
% Fluid Retained
100
95
90
85
80
75
70
65
60
0
Fluid Consumption
P<0.05
0
30
60
90
120
150
180
210
Recovery Time (min)
5 meq
18 meq
30 meq

Figure 13

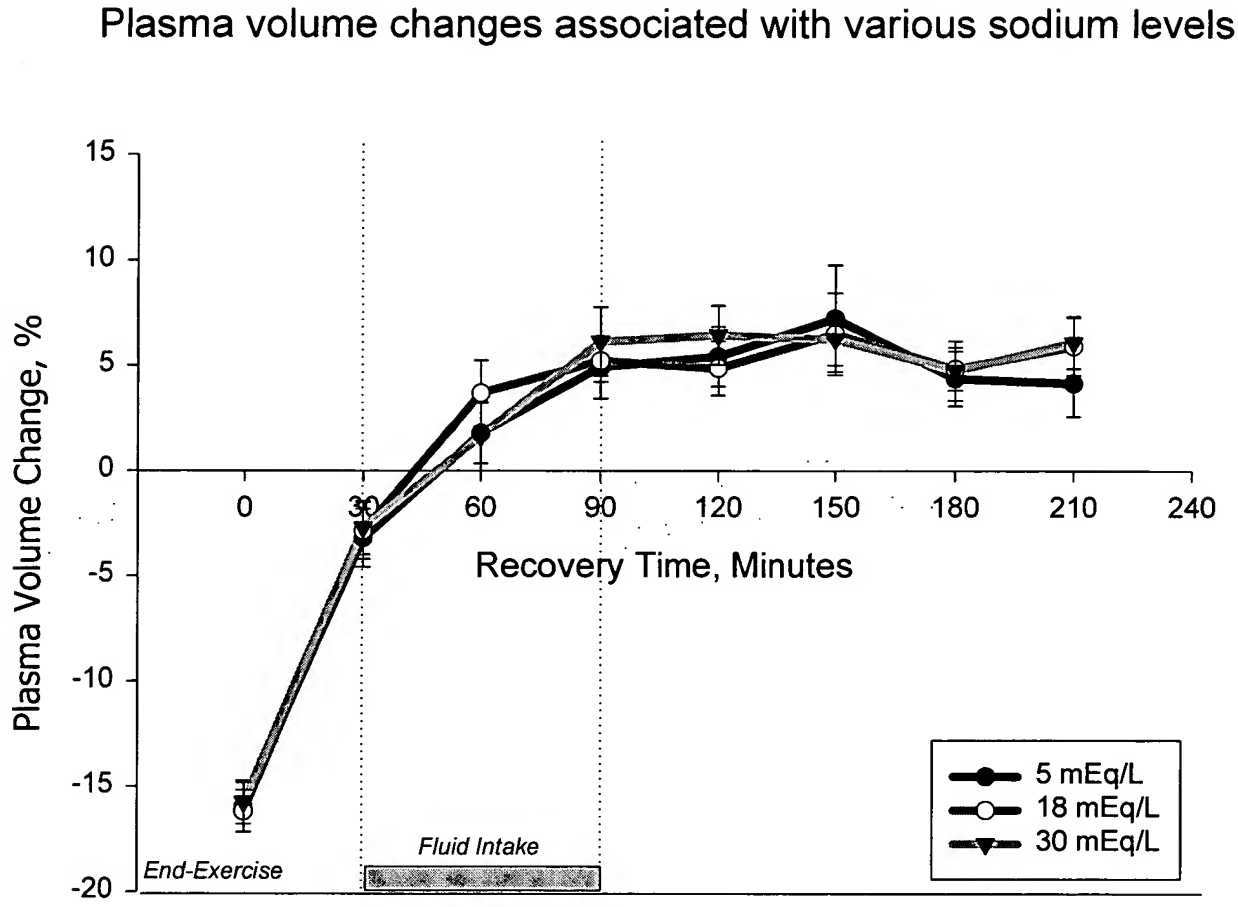

Plasma volume changes associated with various sodium levels
Plasma Volume Change, %
15
10
5
0
-5
-10
-15
-20
0
30
60
90
120
150
180
210
240
Recovery Time, Minutes
End-Exercise
Fluid Intake
5 mEq/L
18 mEq/L
30 mEq/L

Figure 14

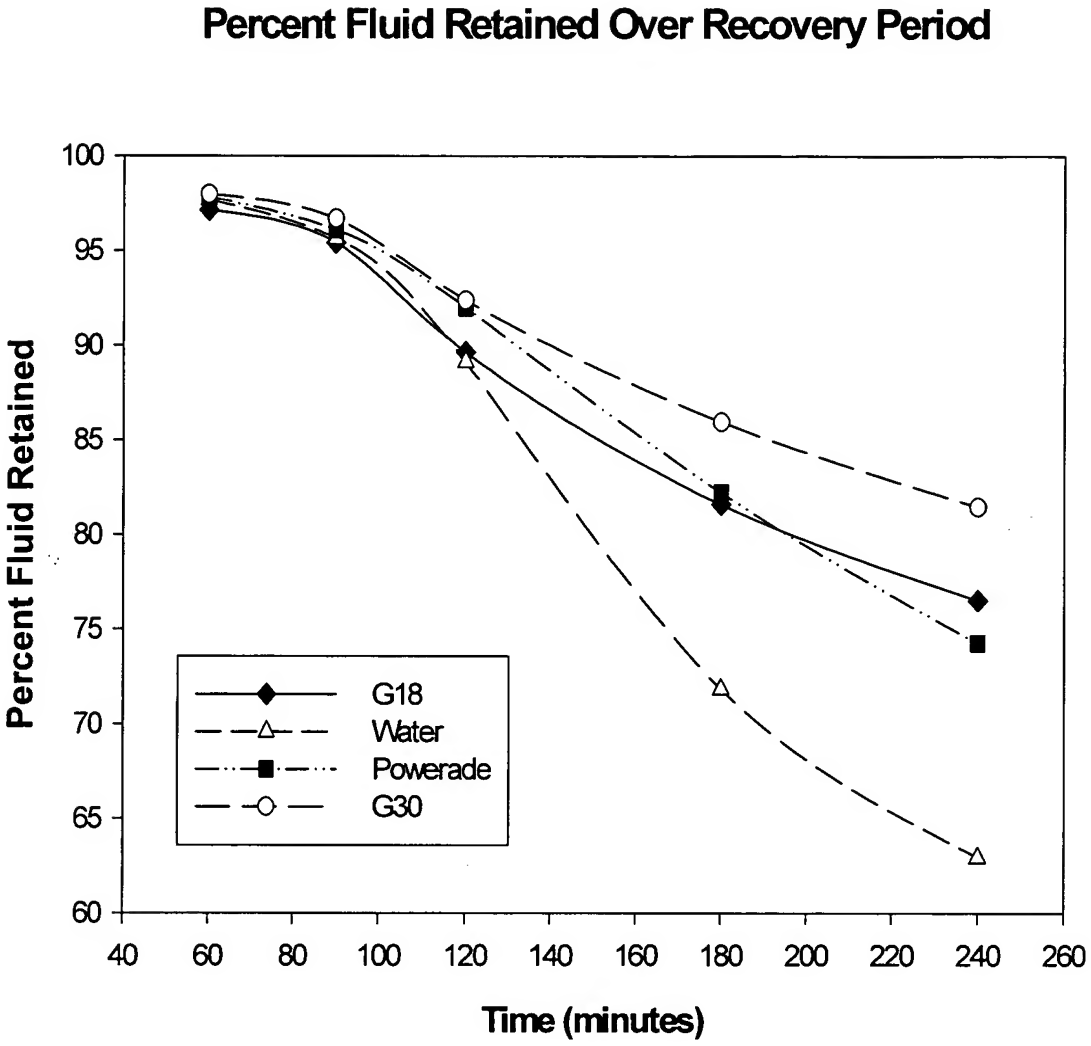

Percent Fluid Retained Over Recovery Period
Percent Fluid Retained
100
95
90
85
80
75
70
65
60
40
60
80
100
120
140
160
180
200
220
240
260
Time (minutes)
G18
Water
Powerade
G30

Figure 15

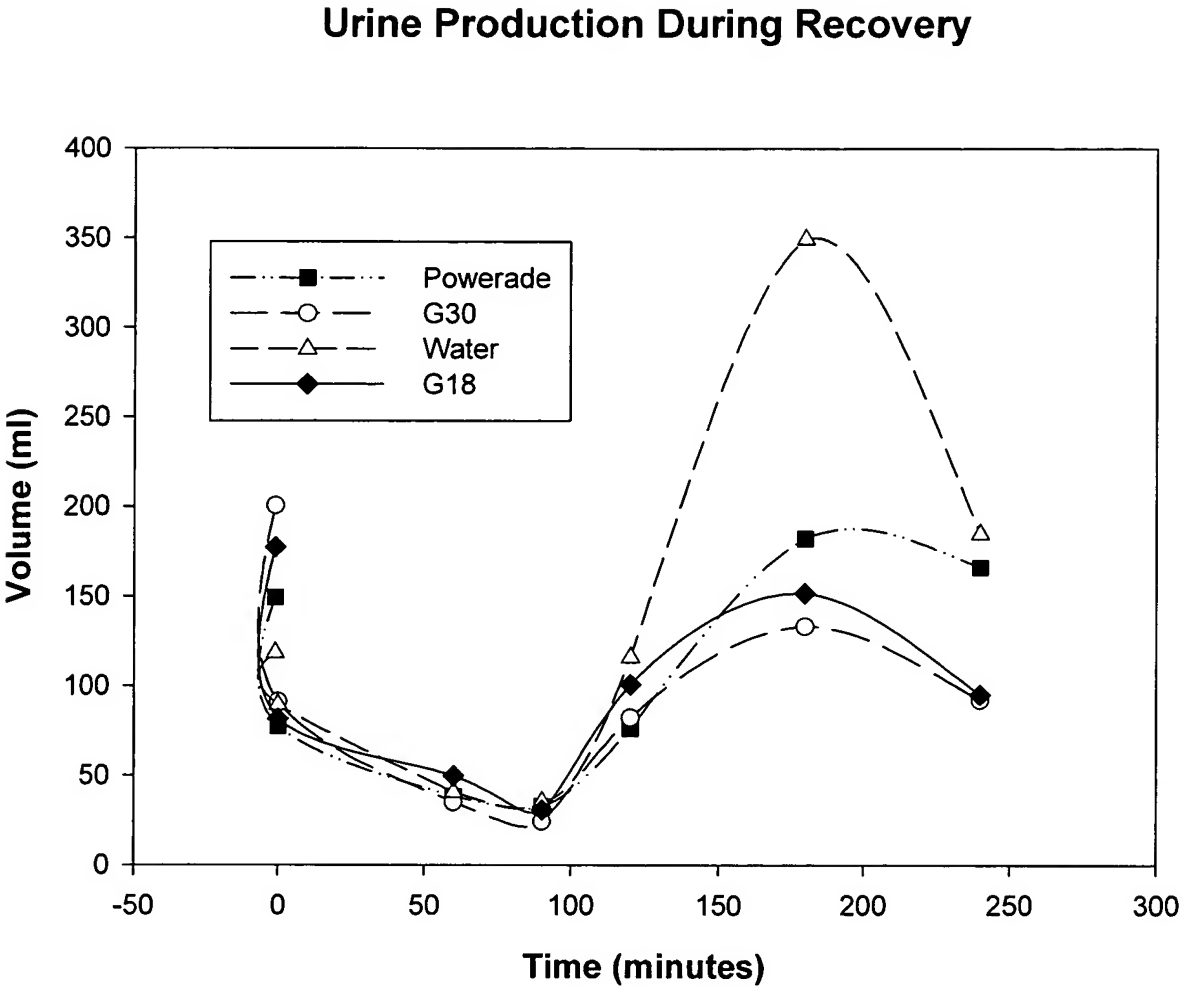

Urine Production During Recovery
Volume (ml)
Time (minutes)
Powerade
G30
Water
G18
400
350
300
250
200
150
100
50
0
-50
0
50
100
150
200
250
300

Figure 16

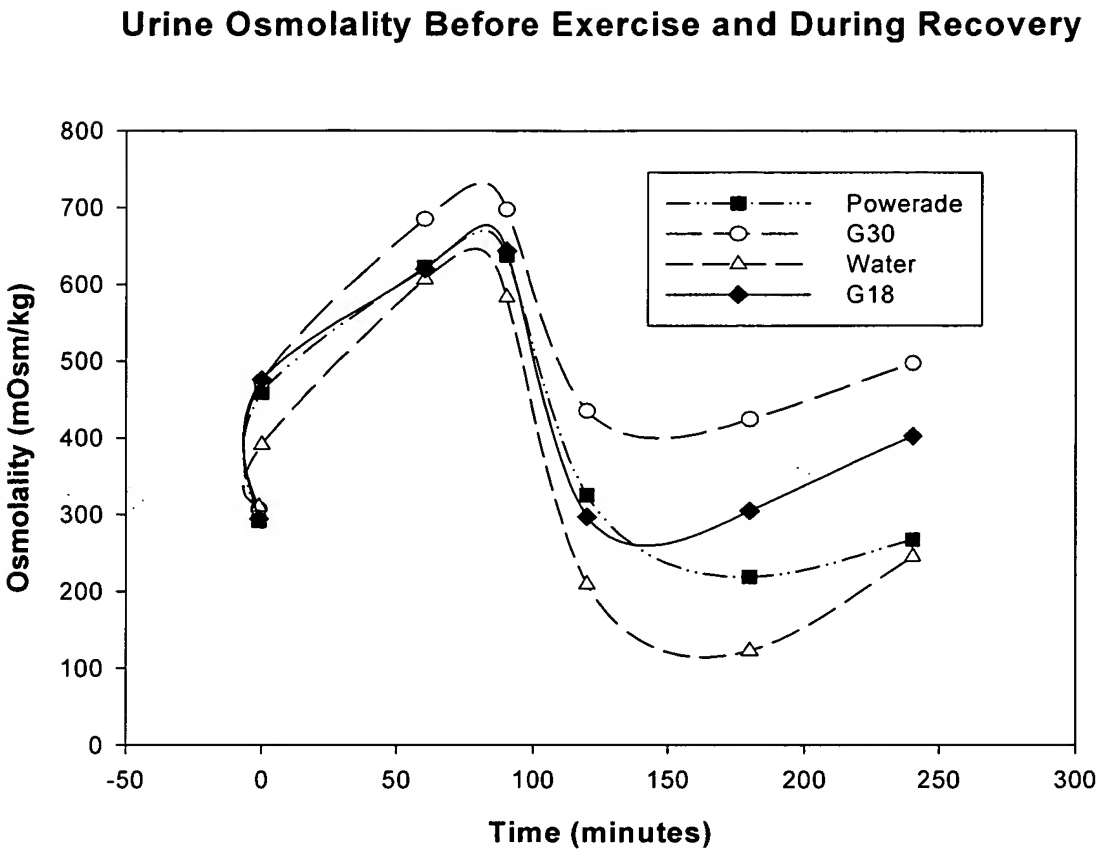

Urine Osmolality Before Exercise and During Recovery
Osmolality (mOsm/kg)
800
700
600
500
400
300
200
100
0
-50
0
50
100
150
200
250
300
Time (minutes)
Powerade
G30
Water
G18

Figure 17

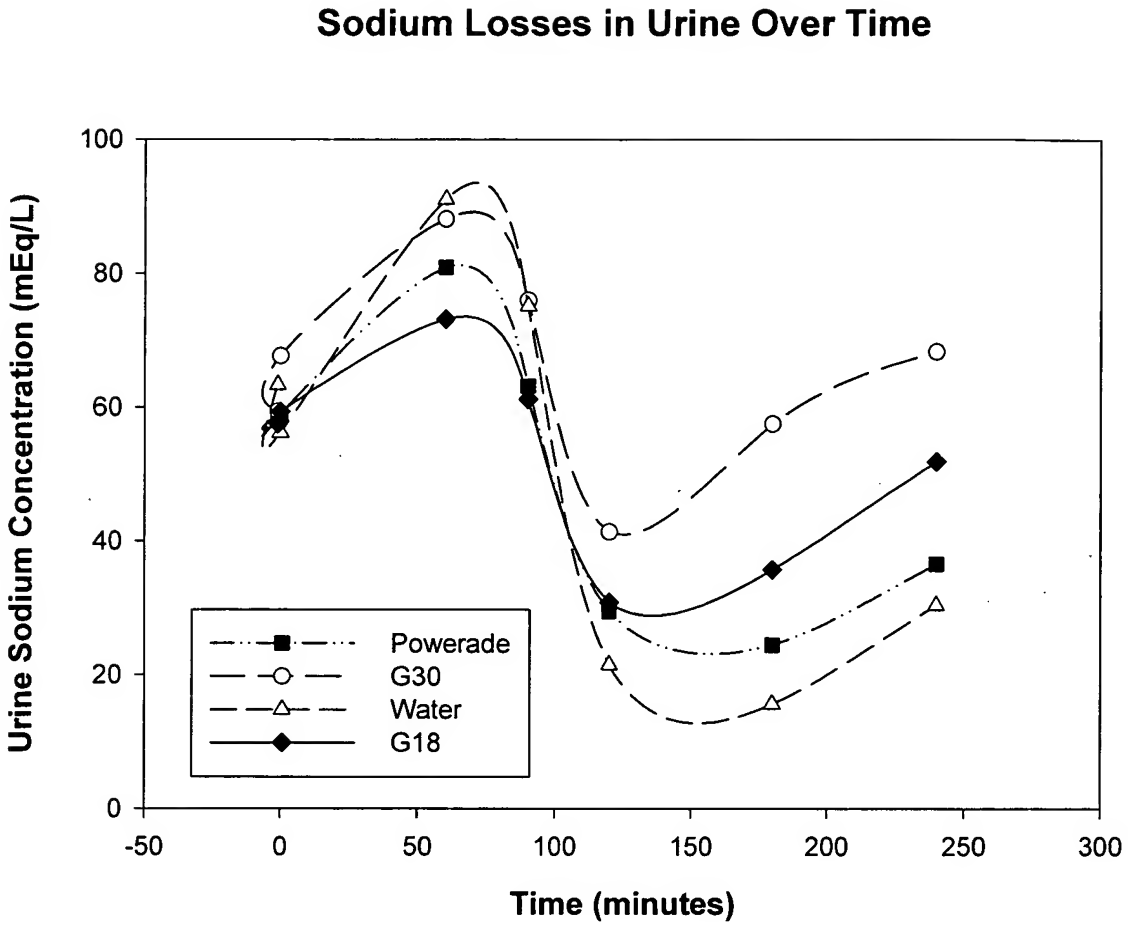

Sodium Losses in Urine Over Time
Urine Sodium Concentration (mEq/L)
100
80
60
40
20
0
-50
0
50
100
150
200
250
300
Time (minutes)
Powerade
G30
Water
G18

Figure 18

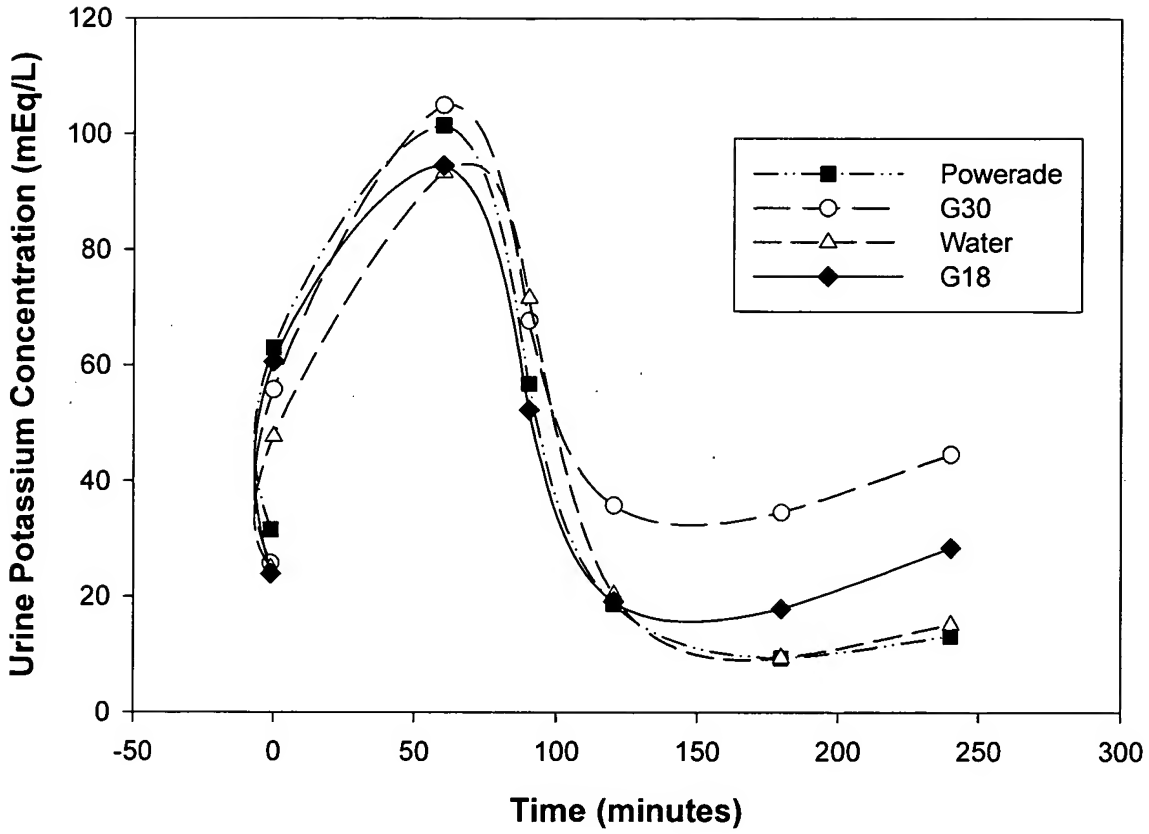

Urin Potassium Loss s in Urine Over Tim
Urine Potassium Concentration (mEq/L)
120
100
80
60
40
20
0
-50
0
50
100
150
200
250
300
Time (minutes)
Powerade
G30
Water
G18

Figure 19

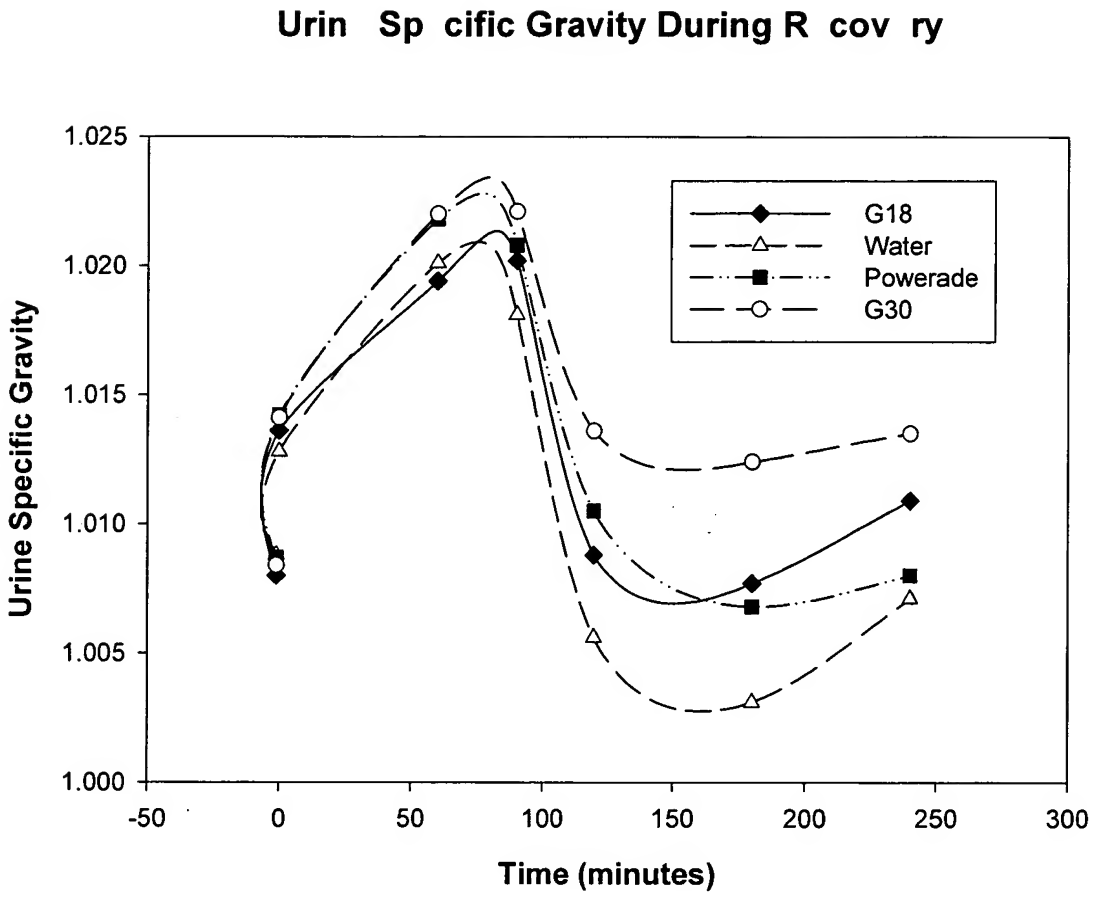
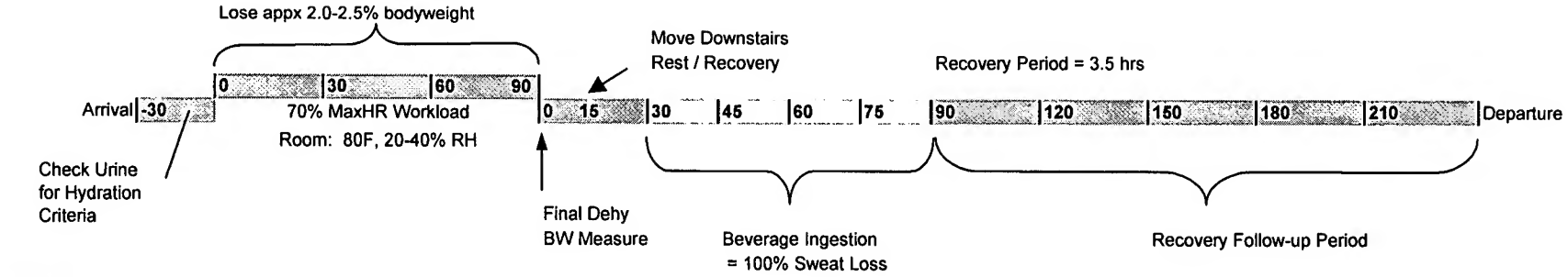

Urin Sp cific Gravity During R cov ry
Urine Specific Gravity
1.025
1.020
1.015
1.010
1.005
1.000
-50
0
50
100
150
200
250
300
Time (minutes)
G18
Water
Powerade
G30

Figure 20



Measures									
Urine	U0	U1		U2	U3	U4	U5	U6	U7
Sensory									
GI Scale	B	G0	G30	G60	G90	G120	G150	G180	G210
Bodyweight	BW0	BW2							BW3

Drinking Schedule

Time	30	40	50	60	70	80	90
Drink	D1	D2	D3	D4	D5	D6	
Vol	25%	25%	12.50%	12.50%	12.50%	12.50%	
Sens	S1	S2		S3		S4	
S Time	*32*	*42*		*62*		*82*	

Figure 21

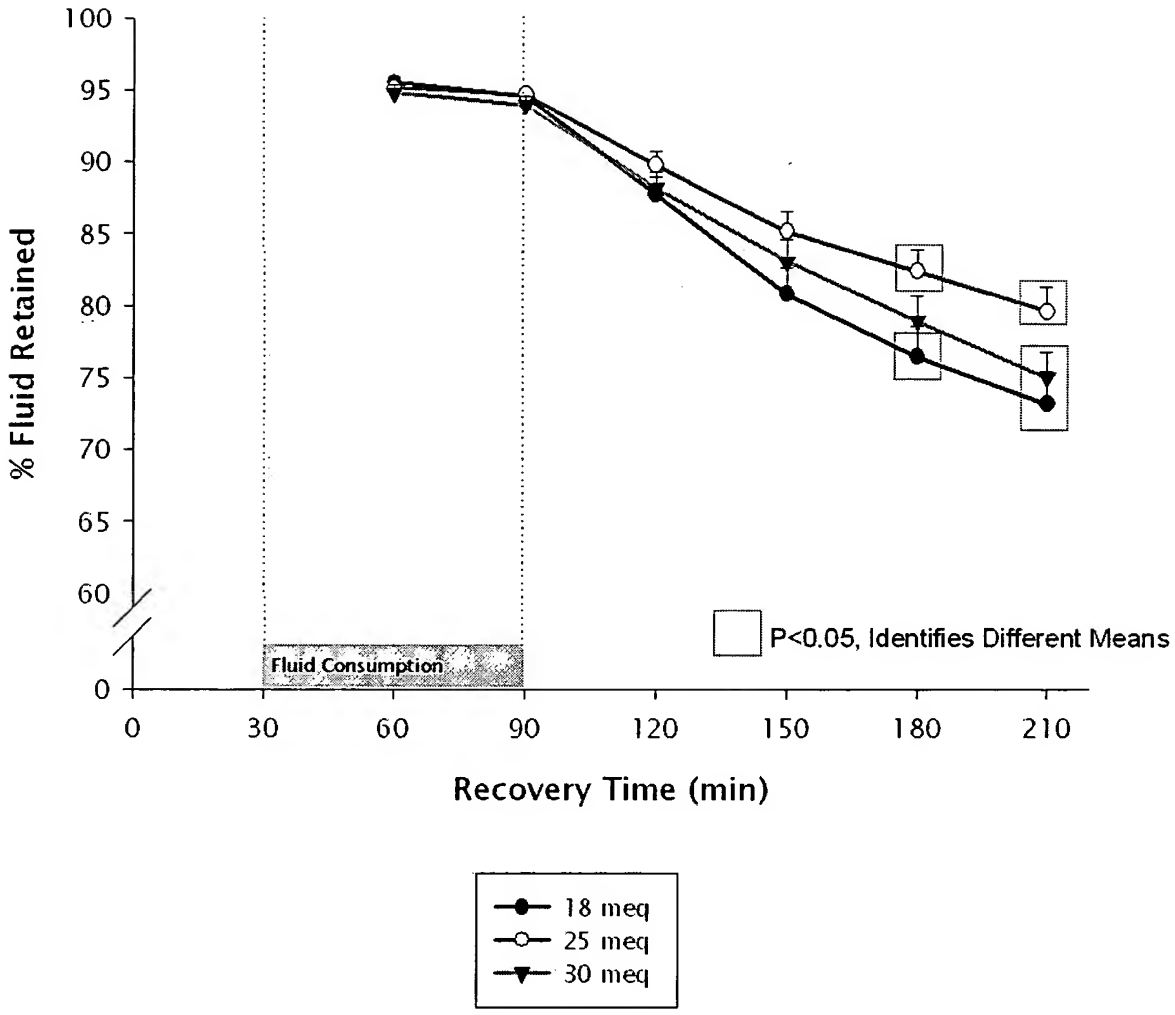

100
95
90
85
80
75
70
65
60
0
% Fluid Retained
Fluid Consumption
P<0.05, Identifies Different Means
0
30
60
90
120
150
180
210
Recovery Time (min)
18 meq
25 meq
30 meq

Figure 22

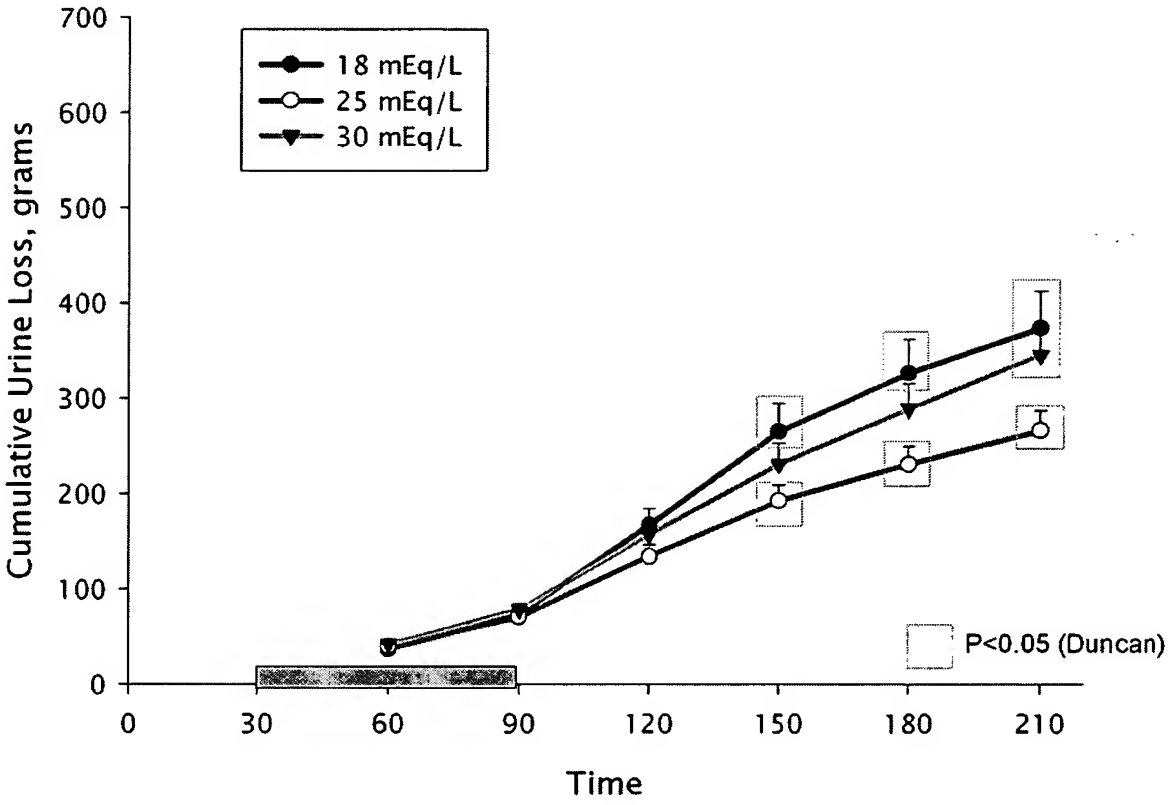

700
600
500
400
300
200
100
0
Cumulative Urine Loss, grams
18 mEq/L
25 mEq/L
30 mEq/L
P<0.05 (Duncan)
0
30
60
90
120
150
180
210
Time

Figure 23

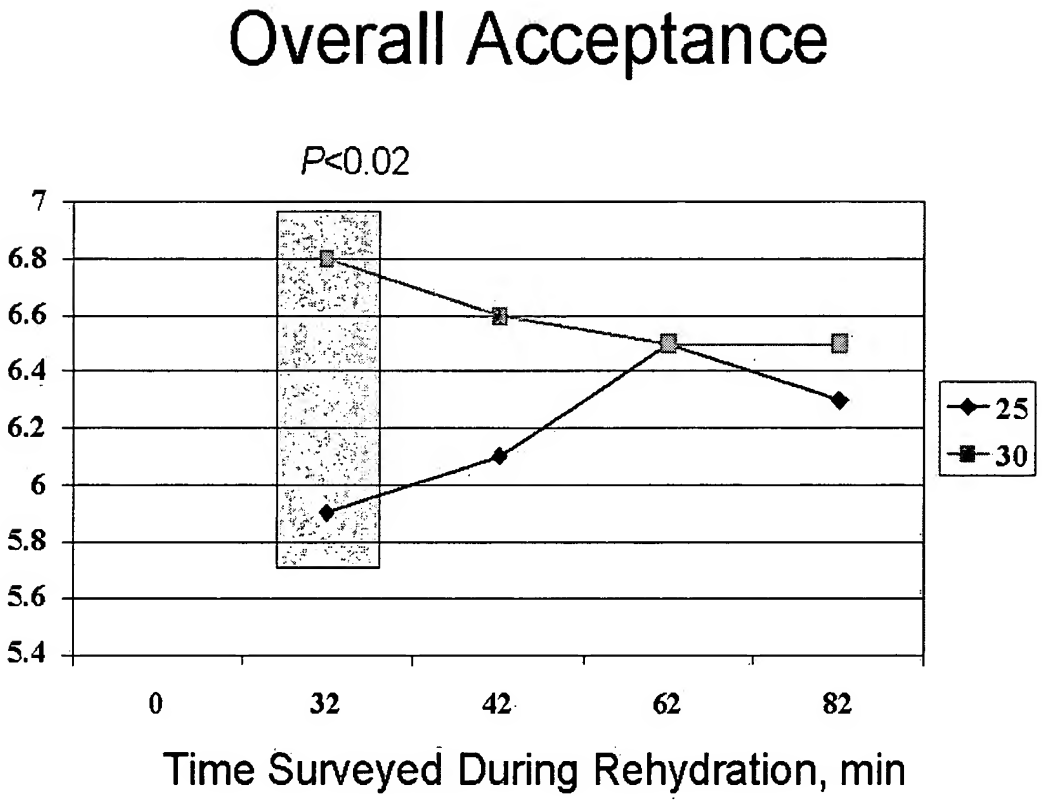

Overall Acceptance
P<0.02
7
6.8
6.6
6.4
6.2
6
5.8
5.6
5.4
0
32
42
62
82
25
30
Time Surveyed During Rehydration, min

Figure 24

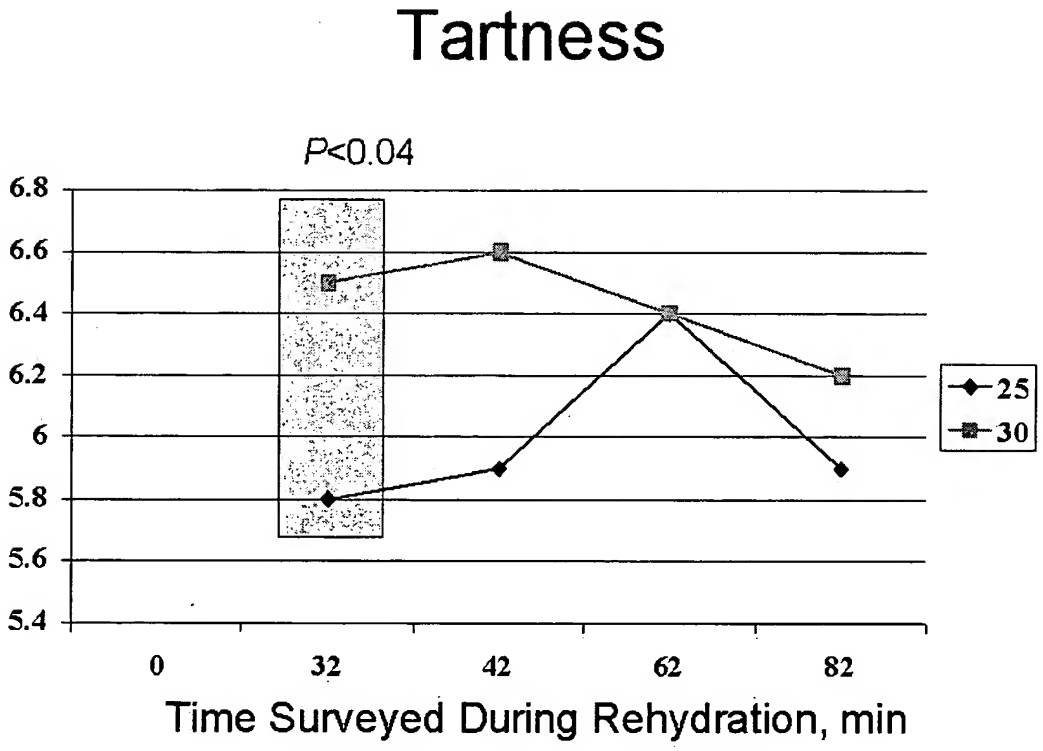

Tartness
P<0.04
6.8
6.6
6.4
6.2
6
5.8
5.6
5.4
0
32
42
62
82
Time Surveyed During Rehydration, min
25
30

Figure 25

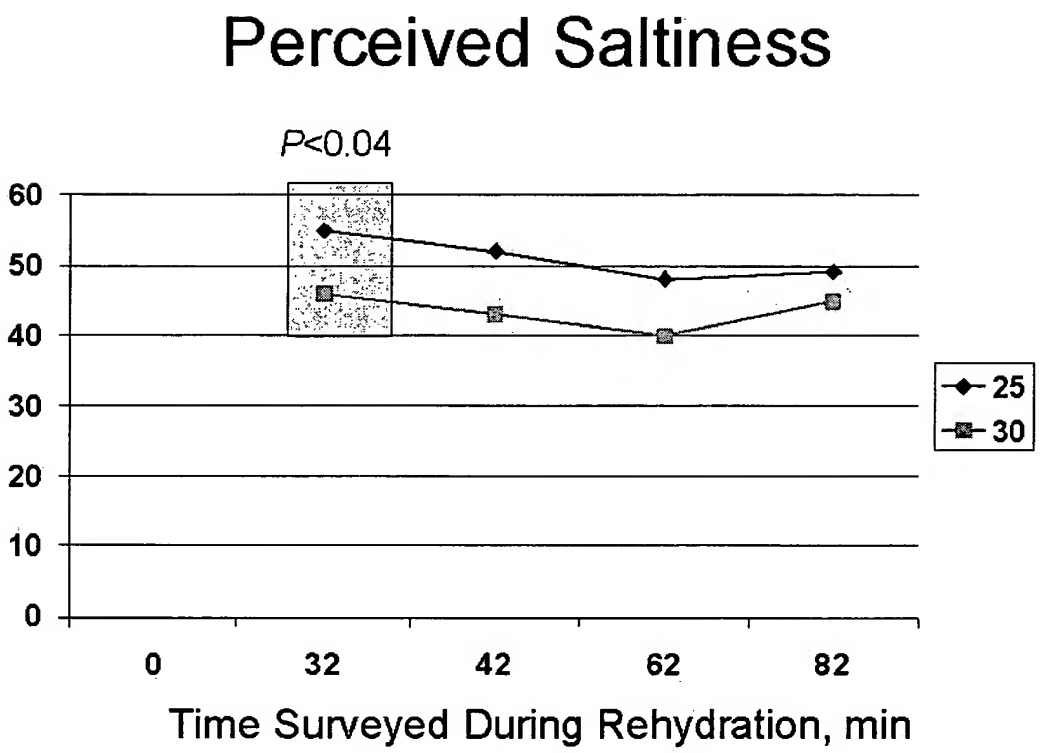
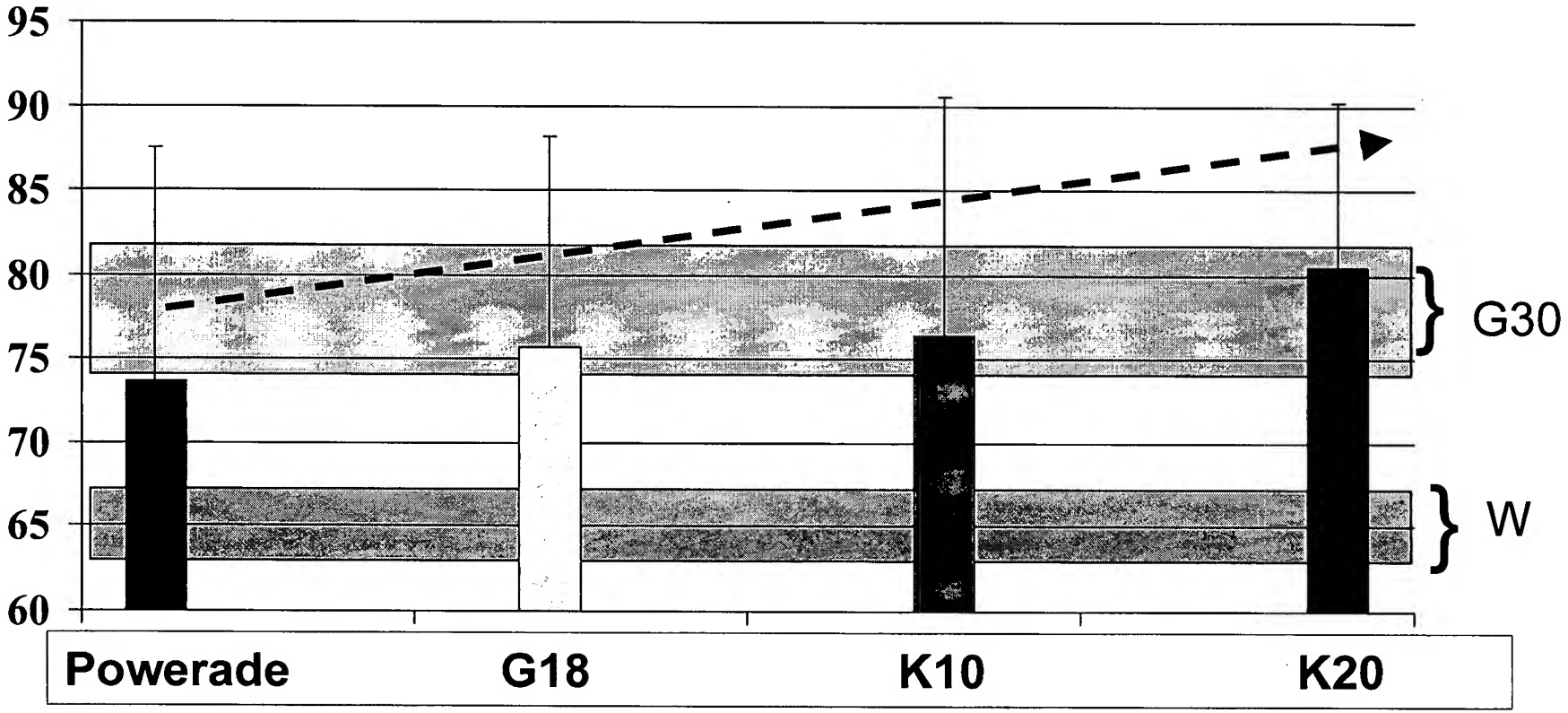

Perceived Saltiness
P<0.04
60
50
40
30
20
10
0
0
32
42
62
82
Time Surveyed During Rehydration, min
25
30

Figure 26

Figure 27

% Fluid Retained

p= 0.08 for treatment difference



Shaded horizontal bars = historical range of effects for G30 & water (W)

Figure 28

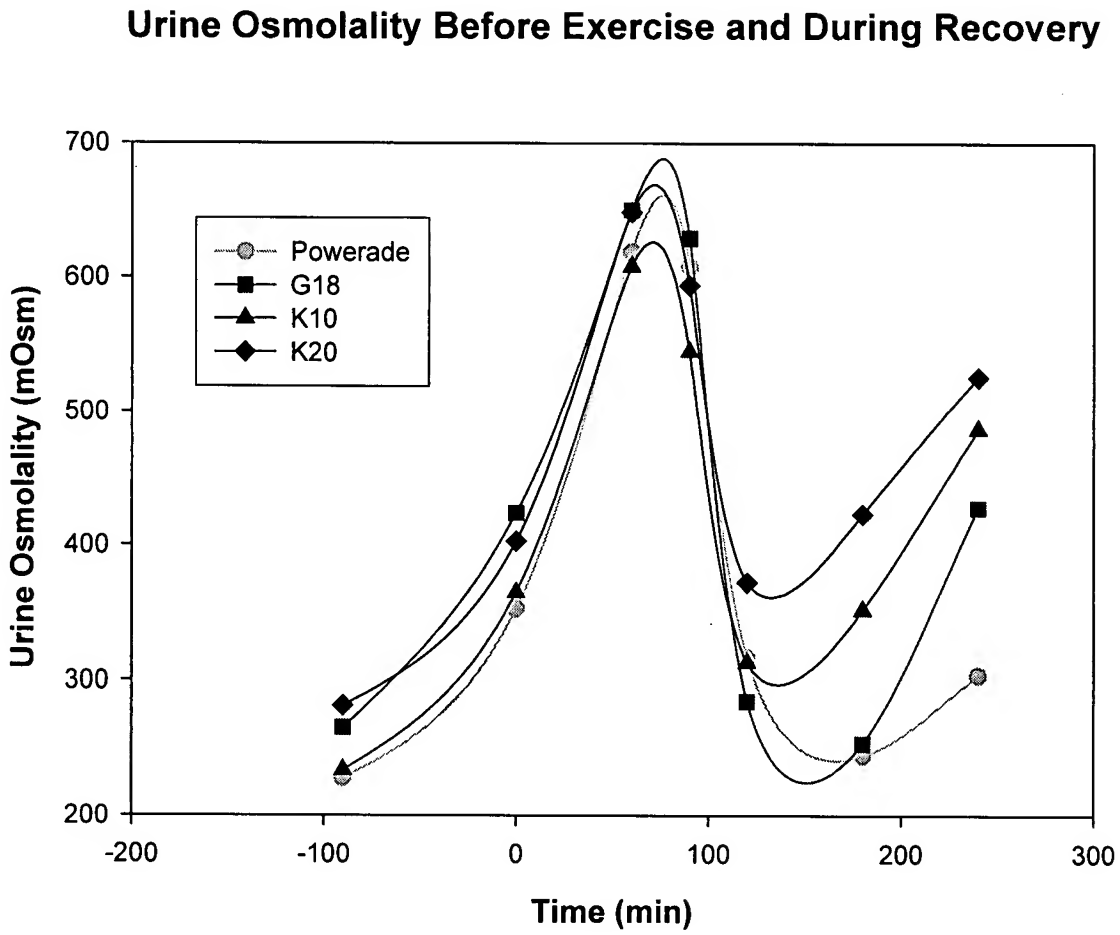

Urine Osmolality Before Exercise and During Recovery
Urine Osmolality (mOsm)
700
600
500
400
300
200
-200
-100
0
100
200
300
Time (min)
Powerade
G18
K10
K20

Figure 29

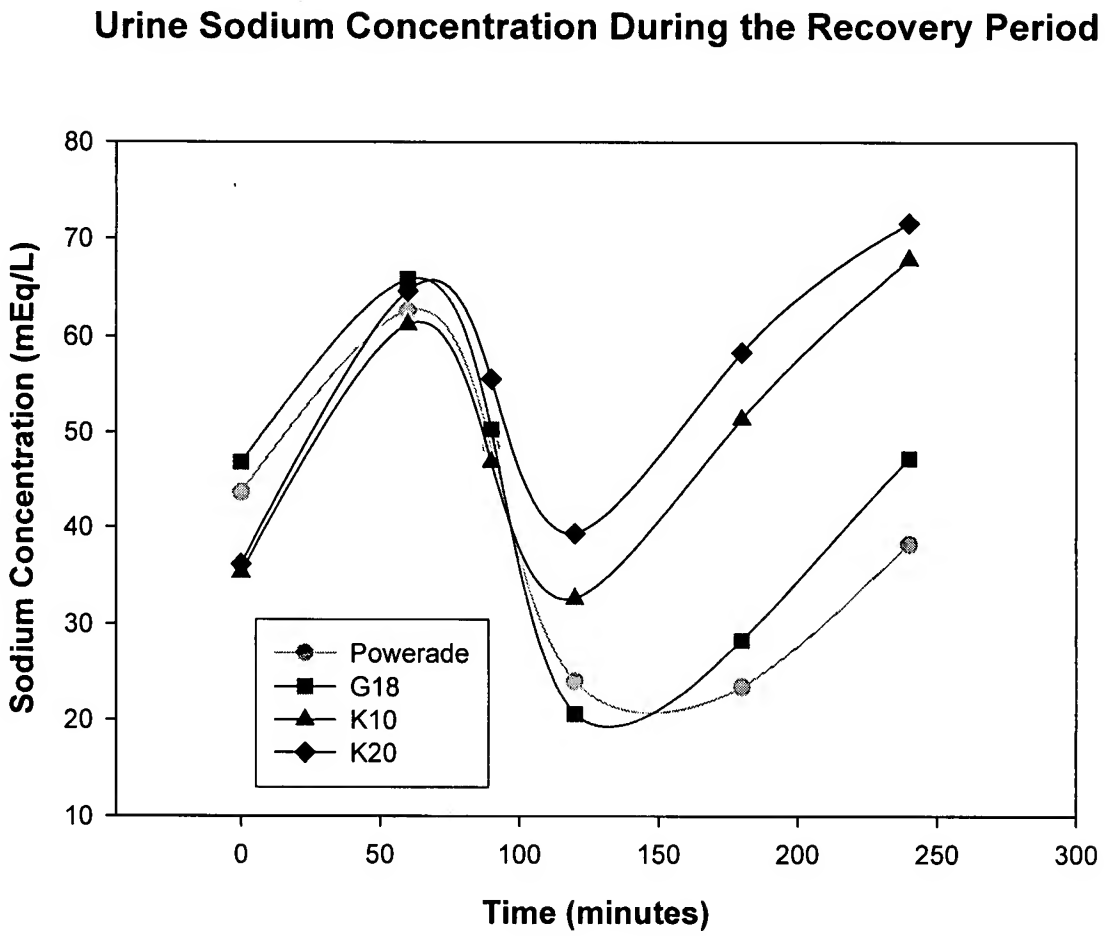

Urine Sodium Concentration During the Recovery Period
Sodium Concentration (mEq/L)
80
70
60
50
40
30
20
10
0
50
100
150
200
250
300
Time (minutes)
Powerade
G18
K10
K20

Figure 30

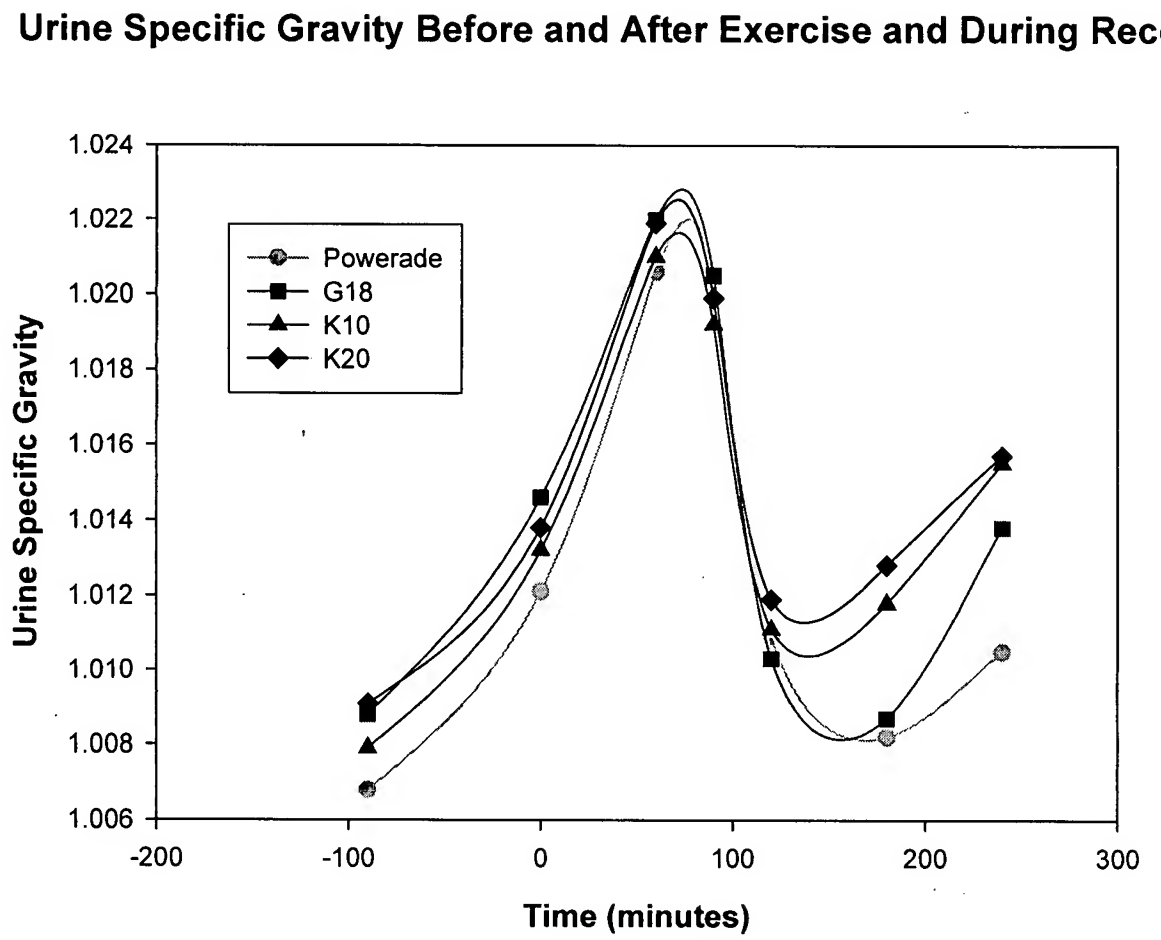

Urine Specific Gravity Before and After Exercise and During Recovery
Urine Specific Gravity
1.024
1.022
1.020
1.018
1.016
1.014
1.012
1.010
1.008
1.006
-200
-100
0
100
200
300
Time (minutes)
Powerade
G18
K10
K20

Figure 31

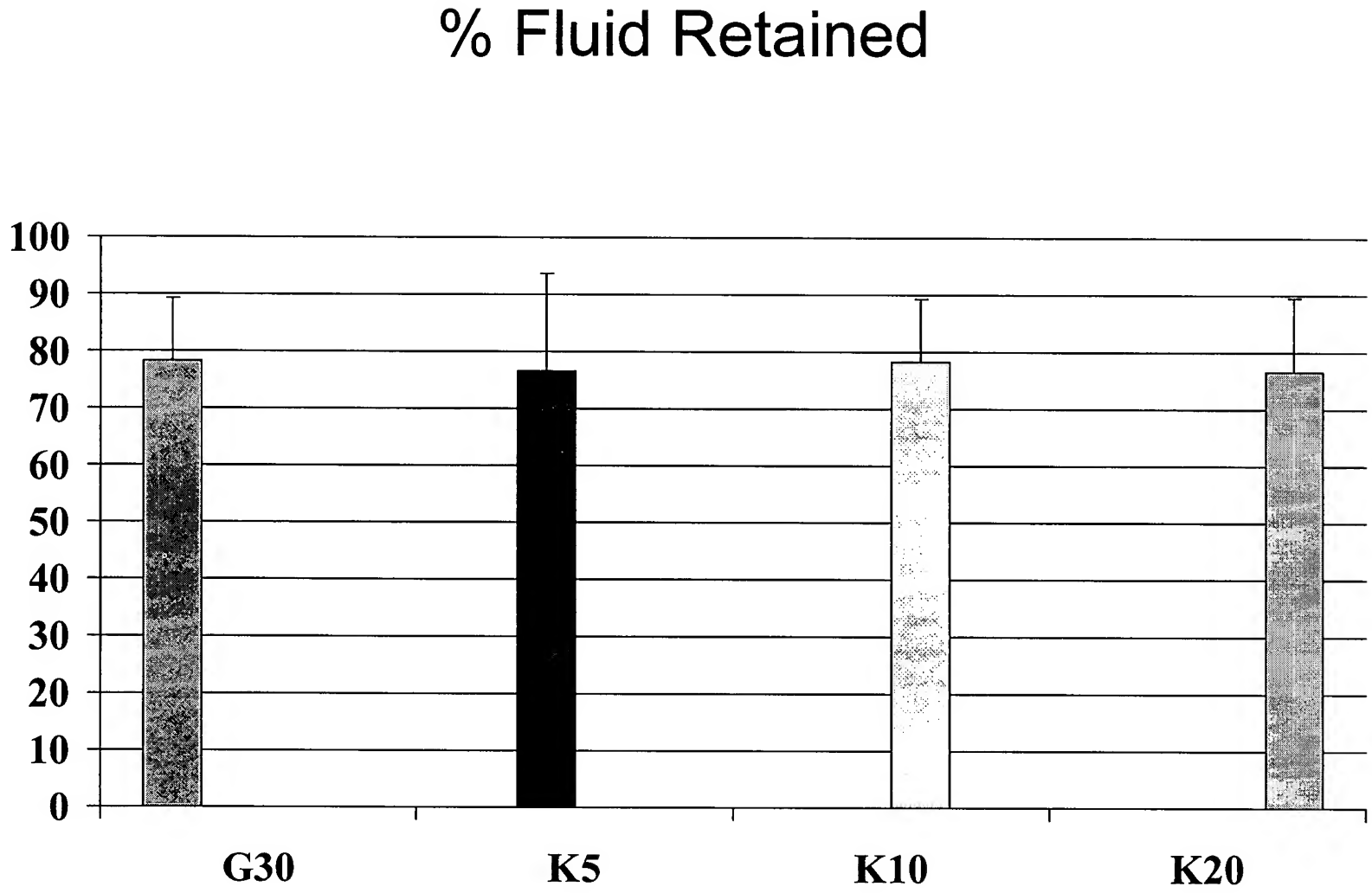


Figure 32

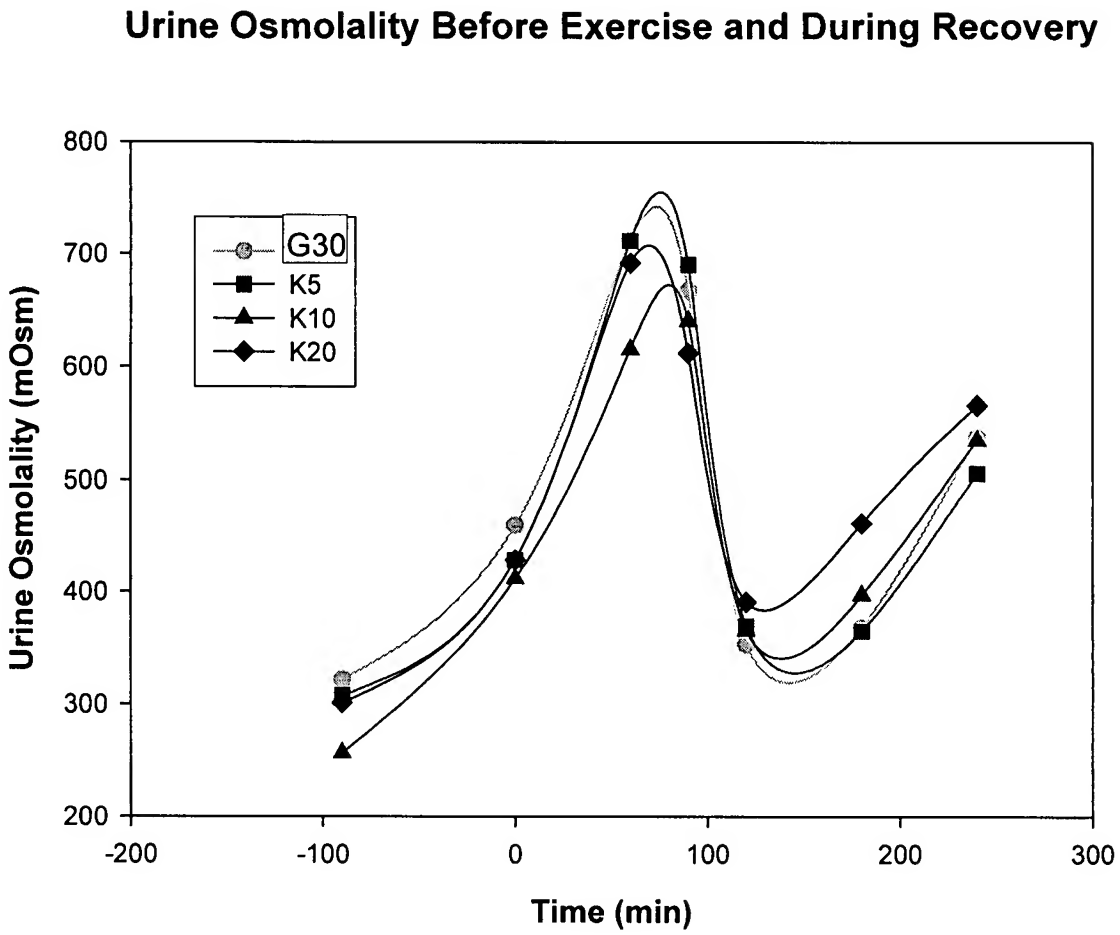

Urine Osmolality Before Exercise and During Recovery
Urine Osmolality (mOsm)
800
700
600
500
400
300
200
-200
-100
0
100
200
300
Time (min)
G30
K5
K10
K20

Figure 33

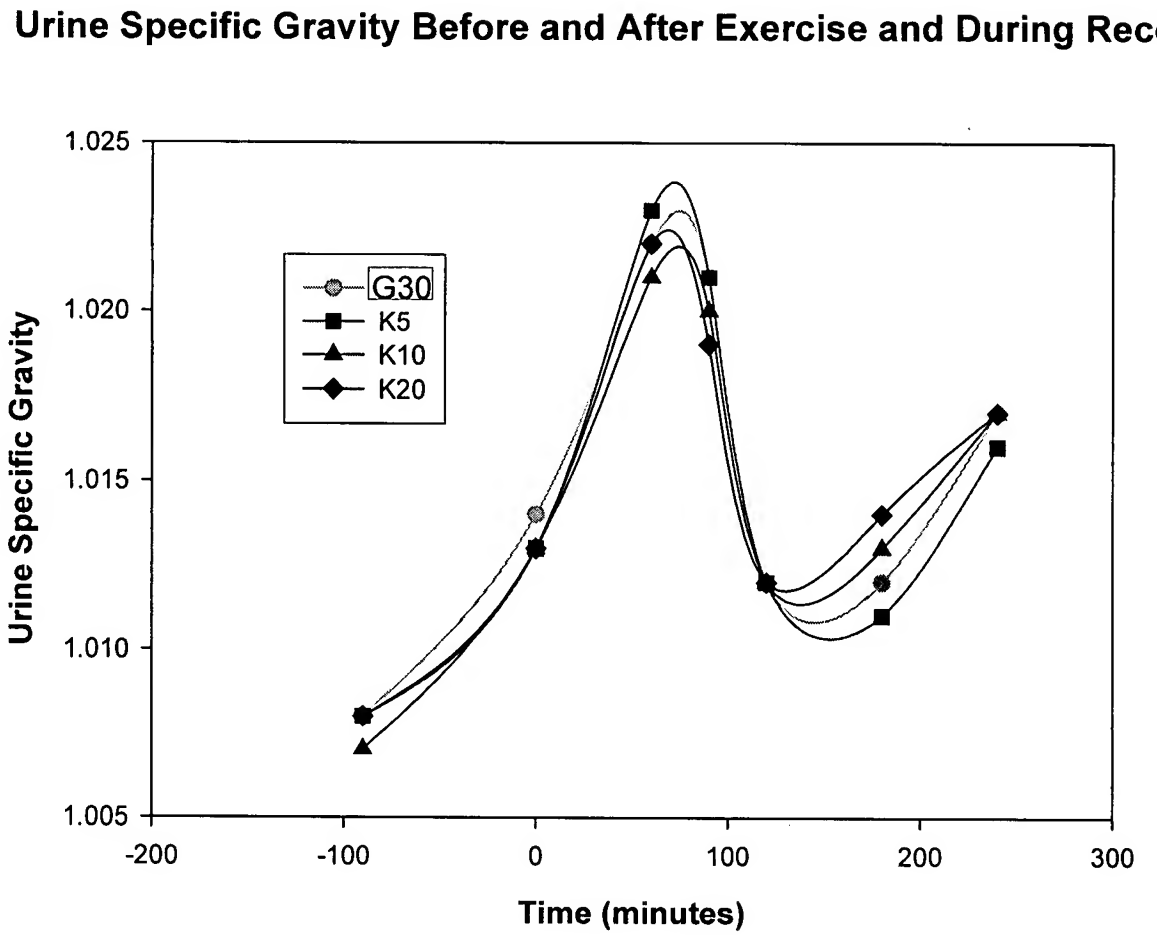

Urine Specific Gravity Before and After Exercise and During Recovery
1.025
1.020
1.015
1.010
1.005
Urine Specific Gravity
G30
K5
K10
K20
-200
-100
0
100
200
300
Time (minutes)

Figure 34

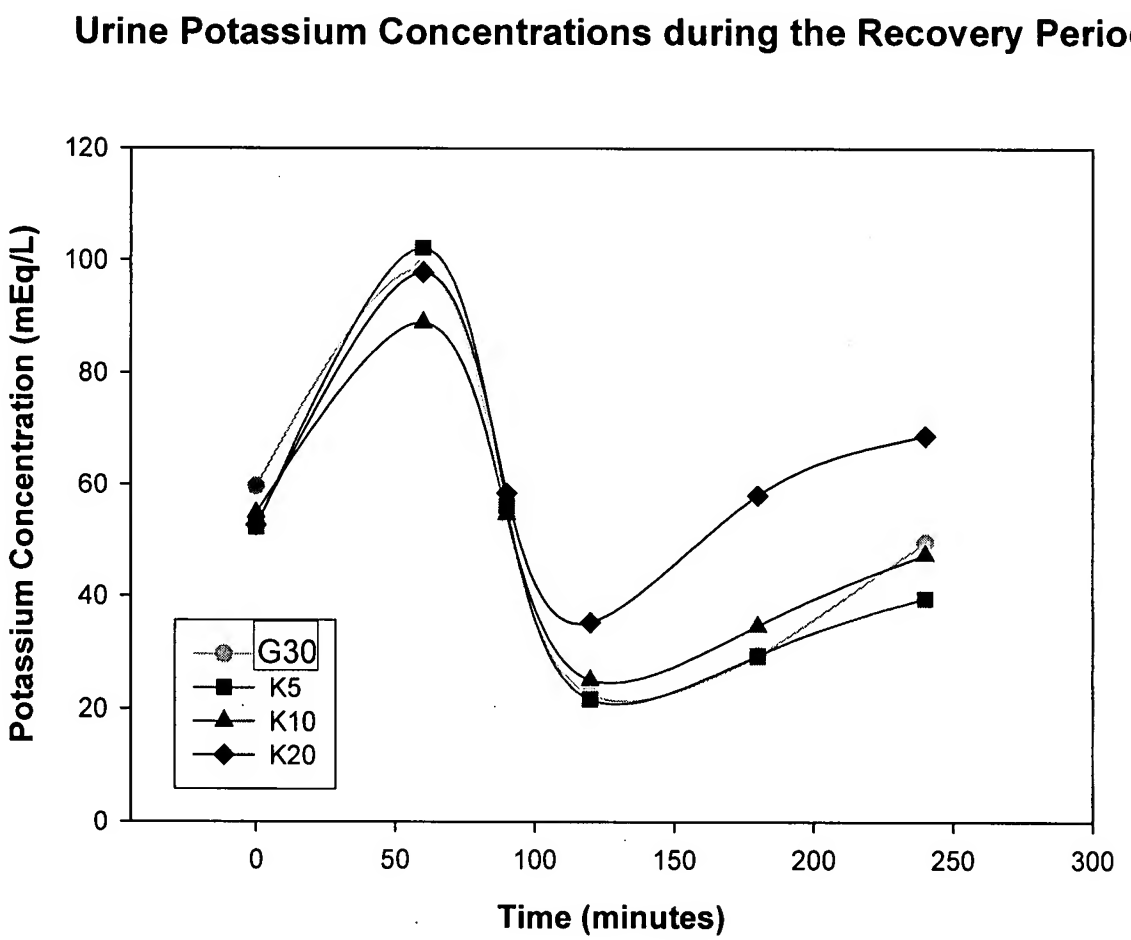
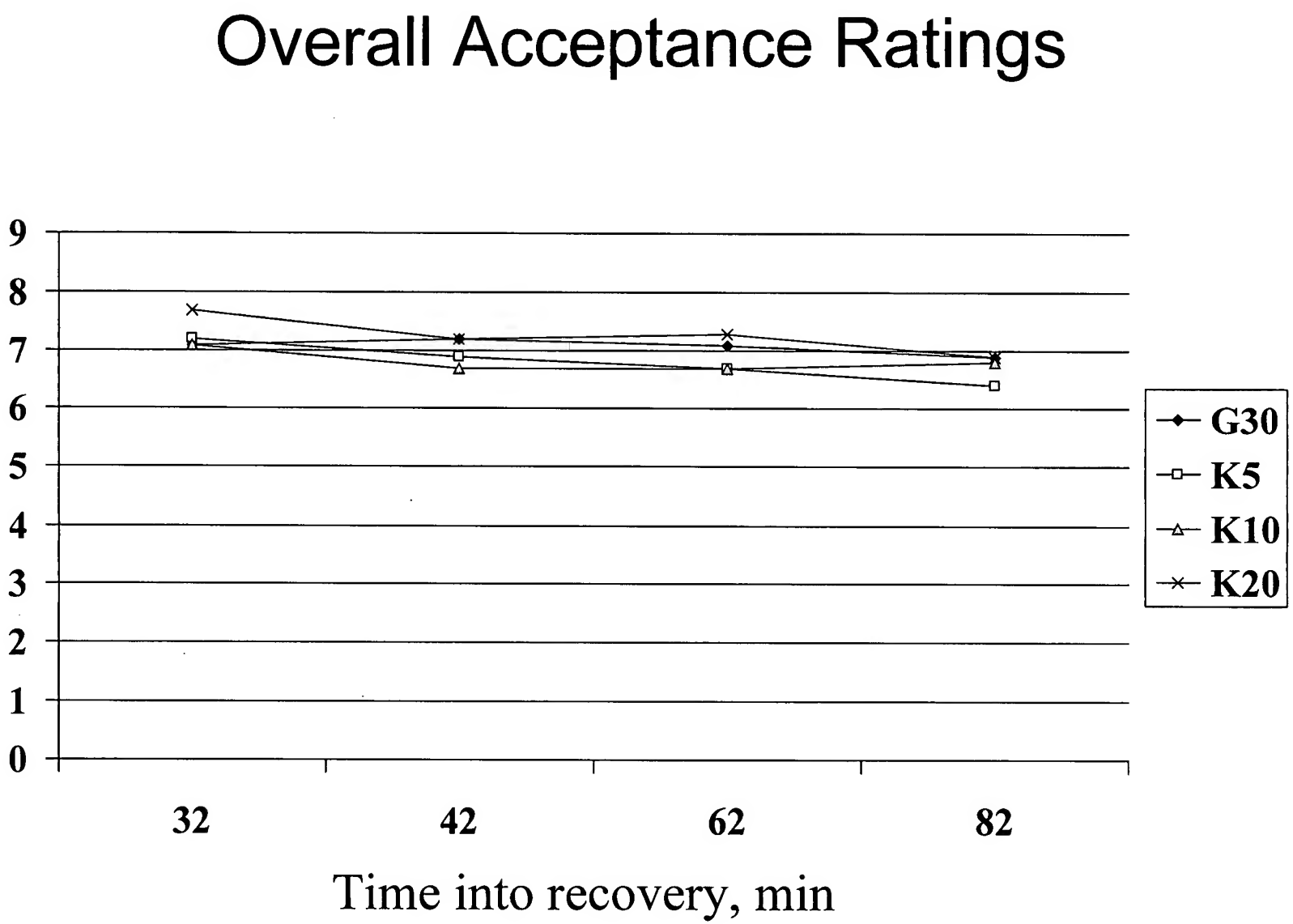

Urine Potassium Concentrations during the Recovery Period
Potassium Concentration (mEq/L)
120
100
80
60
40
20
0
0
50
100
150
200
250
300
Time (minutes)
G30
K5
K10
K20

Figure 35


Overall Acceptance Ratings
9
8
7
6
5
4
3
2
1
0
32
42
62
82
Time into recovery, min
G30
K5
K10
K20